CRANFIELD UNIVERSITY

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DECISION MAKING IN UNFAMILIAR PROBLEM DOMAINS:

EVIDENCE FROM THE INVESTMENT BANKING INDUSTRY

SCHOOL OF MANAGEMENT

DBA THESIS

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Academic Year 2003-2004

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February 2004

This thesis is submitted in partial fulfilment of the requirements for the degree of

Doctor of Business Administration

Abstract

This research explores the determinants of risk behaviour when an organisation operates outside its normal operational domain. Organisations are being forced outside their normal operational domains with ever-increasing frequency. Through studying a banking acquisition, an area which has not been studied before, the research identifies the risks faced by the organisation, the apparent irrational management of the risks, and the reasons for this behaviour.

The research applies multiple research methods, which include the review of company documentation, interviews with key managers and external experts, a modified Delphi technique, case studies and statistical analysis. Through these methods, the risks faced by the organisation are identified and evaluated in terms of probability, impact, and degree of mitigation. Four risks are investigated in detail, and based on these, six propositions are put forward, four of which are support by statistical tests.

The research shows that where the organisation had a successful outcome history in managing a given risk, or could manage the risk using normal management controls, the risk tended to be managed disproportionately well compared to its significance. Where those conditions do not apply the management of the risk tends to be proportionately lacking. There is also evidence to suggest that the existence of industry-specific regulation in relation to a risk results in the risk being better mitigated.

Organisations wishing to improve their risk response in unfamiliar operational domains should therefore consider day-to-day controls as one route to improvement. Also, where possible, they should try to create a history of successful outcomes in dealing with the risk types they are likely to face in unfamiliar problem domains. Regulatory bodies need to consider the impact that their regulations will have in order to help organisations exhibit better behaviours in unfamiliar problem domains.

Dedication

Orlaith, Andrew and James.

Acknowledgements

This research would never have been possible without the input and support of a number of organisations and individuals.

I would like to start by acknowledging the support of my wife and family over the last four and a half years. Without them this could not even have been contemplated.

I would like to thank the organisations who sponsored this research, the acquiring bank under study and Merrill Lynch. I would also like to note my appreciation of those who were prepared to be panel members for this research.

Thanks is due also to the four members of my panel, Professor Mark Jenkins, Dr. David Partington, Dr. Cliff Bowman and Dr. Keith Goffin, who, since 1999, who have kept me on track and always offered their input and counsel.

I have also deeply indebted to the library and administrative staff who have always been of great service to me, as have all the teaching and non-teaching staff at Cranfield University. Particular thanks are due to Professor Mary-Jo Hatch and Professor Anne Huff.

Finally, I would like to thank my friends and colleagues who have been very understanding throughout this long period.

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PART A: SYNOPTIC DOCUMENT

CHAPTER 1: INTRODUCTION AND LINKING DOCUMENT

This chapter introduces the research, its background, purpose, and structure, and links the three research projects.

1 Introduction

The terms "merger", "acquisition" and "takeover" refer to various forms of transforming the control of an organisation from one set of owners to another, and collectively, they are referred to as merger and acquisition (M&A) activity (Sudarsanam, 1995:1). This activity involves the combining of two or more corporate entities, or parts of entities, to form a new or enlarged single entity.

Undertaking a merger or acquisition places most organisations outside their normal, and therefore "familiar", operational domain. The process of changing the legal ownership of the company (Change of Control) places operational constraints upon all organisations, and in the case of investment banks which trade equities, commodities, debt and similar financial instruments on their own behalf and on the behalf of their clients, there are additional constraints which are unique to the financial services industry. This research examines how one large investment bank acquired another investment bank. By examining this acquisition, the determinants of risk behaviour, and the behaviour itself, are determined. The focus is primarily on the risk identification and behaviour during the acquisition's Change of Control (CoC).

1.1 The target organisation

This research examines what was, at that time, the largest acquisition in financial history. While the research focuses on both the acquiring and acquired bank, it refers, on occasion, to an earlier acquisition made by the acquired bank. It is necessary to keep the identity of the target organisation and the other two banks confidential. There are four primary reasons for concealing the identity of firms involved. Firstly, there is the possibility that some details might compromise the acquiring bank's competitive position. Secondly, at this senior level the banking industry is a close-knit business community, and the individual participants stipulated that anonymity be maintained. Thirdly, there is the possibility that any unfavourable findings could embarrass the target organisation and might impact upon its standing, reputation and possibly market valuation. Fourthly, by assuring confidentiality, I have been given, with the exception of personnel data, almost unrestricted access to the acquisition documentation, and this would not have been forthcoming otherwise.

The research refers directly to three banks; Banks A, B and C. The first, Bank A, is the investment-banking arm of a major UK bank. Its parent is a successful retail and commercial bank. It created Bank A as part of its diversification into other financial products.

Bank A had a turbulent trading history and incurred substantial losses. In the late 1990s its parent wished to divest it. An American bank, Bank B, acquired it.

Bank B is a long-established US investment bank, ranked amongst the ten largest in the US. It made a number of successful acquisitions during the 1980s and 1990s and acquired Bank A in the second half of the 1990s.

Bank C is a large European bank. It had grown through acquisition and organic growth; becoming the leading retail bank in its home country as well as other European countries. In addition, its investment banking operations are sizeable in the UK, Europe and Asia. It acquired Bank B in the late 1990s creating a global investment bank.

Bank C is the target organisation of this research. All of the participants have been involved in Bank C's acquisition of Bank B. Many have also been involved in Bank B's acquisition of Bank A.

1.2 The business issue

In introducing the business issue, this section will examine how merger and acquisition activity among banks and similar financial organisations is different from M&A activity in general. This section will show that:

- There is a growing trend toward increased M&A activity (Mergerstat, 2003b), both in terms of transactions (number of M&A deals being attempted) and size (monetary value of organisations being combined)

- M&A activity is expensive to undertake; the merger under study cost over US$11 billion [DOC08C]

- M&A activity is failure-intensive (more not to achieve its stated aims than achieve them) (Meeks, 1977)

- When M&As fail, they are very expensive in terms of shareholder value and may threaten the existence of the organisation. A recent example of this is the

post- merger losses of US$97 billion at AOL Time Warner (Thal Larsen, 2003:1); and

- Banking and finance M&As are subject to special regulatory reporting requirements which require close co-operation between the acquirer and the acquired, which is normally prohibited and is normally not essential and is prior to the CoC.

Naturally, with such high probability of loss combined with such high potential impact, risk management is very important in these circumstances. This has been given greater importance in recent years by a number of key stakeholders, such as financial regulators, looking to improve financial reliability, governance and reporting; law enforcers who suspect that malpractice (such as fraud) may have taken place, and industry leaders and the public, who are concerned with the level of ethics exhibited by corporations. The importance of these issues has risen as a result of a number of high-profile corporate failures and reporting scandals such as those involving Enron/Arthur Andersen and WorldCom (Larkin and Casscles, 2003).

Even with the high level of this risk and ensuing public attention, mergers remain a key part of many corporations' intended and emergent strategies, and show no signs of abating (Mergerstat, 2003a). This has certainly been the case with the target organisation. Bank C attempted three major acquisitions during the 1990s. The target organisation's success with these acquisitions was mixed. One was considered a success (Barber, 2000), while another was generally considered a failure (Harris, 1999; Hart, 1998), a perception worsened by its subsequent involvement in a US$200 million fraud trial (Eaglesham, 2002). The third major acquisition failed prior to the change of

control (Aalund, 1999; Rhoads and Portanger, 2000a; Rhoads et al., 2000) resulting in the resignation of one director (Harris et al., 2000) and playing a major role in the undermining and the subsequent resignation of the chairman (Rhoads and Portanger, 2000b; Walker, 2000).

1.2.1 Growth in merger activity

During the 1990s the investment banking sector, like other sectors, saw a considerable amount of M&A activity. The target organisation was not alone in following an acquisition strategy. Some of the more significant acquisitions and mergers of that period were the merger of Saloman Brothers and Travellers Group to form Salomon Smith Barney (The Economist, 1997; Horowitz et al., 1997), which in turn were acquired by Citi Bank a year later (Siconolfi, 1998) to form Citi Group, and the acquisition of JP Morgan by Chase Manhattan (Silverman and Thal Larsen, 2000) to form JP Morgan Chase. In Europe too, this trend was common; Bankers Trust acquired NatWest Markets (Wall Street Journal, 1997), the enlarged Bankers Trust was itself acquired by Deutsche Bank a year later (Breuer and Neumann, 1999), Deutsche Bank having completed an earlier acquisition of Morgan Grenfell in 1989 (Pensions & Investments, 1990).

Banks have not been alone in this "merger wave" (Sudarsanam, 1995). The level of merger activity globally is generally increasing (BBC Online, 2000b; Williams, 2000; The Banker, 1999a; Mergerstat, 2003b). This is clear from the data presented in Table 1 - Global merger activity (1980-2003). Since 2001 the level of activity has decreased, but this should be seen as the passing of yet another "crest" of a rising merger "wave" (Sudarsanam, 1995), a phenomenon that has been observed several times in the past. While figures for 2003 are not yet available, indications are that we have now passed a

trough in this particular wave. During the first six months of 2003 there was a drop of just over 6% in terms of both volume and transaction levels (Thomson Financial, 2003b). In contrast, the third quarter showed a 14% increase in activity (Thomson Financial, 2003a) and the fourth quarter has seen a series of very large mergers and acquisitions being announced, prompting the Financial Times to wonder whether "[the] Big merger animals" and "Merger mania" was back (Financial Times, 2003). In one day alone (October 26th, 2003) the BAT/Phillip Morris merger was announced, along with four others worth over US$70 billion (Morgan, 2003). This type of behaviour has been observed previously, and there are periods when companies "get high" on M&A activity (Sudarsanam, 1995:1).

Year	Number of Deals	Value (US$ billion)	Average Transaction (US$ million)
1980	1,889	44.3	23.5
1981	2,395	82.6	34.5
1982	2,346	53.8	22.9
1983	2,533	73.1	28.9
1984	2,543	122.2	48.1
1985	3,001	179.8	59.9
1986	3,336	173.1	51.9
1987	2,032	163.7	80.6
1988	2,258	246.9	109.3
1989	2,366	221.1	93.4
1990	2,074	108.2	52.2
1991	1,877	71.9	38.3
1992	2,574	96.7	37.6
1993	2,663	176.4	66.2
1994	2,997	226.7	75.6
1995	3,510	356.0	101.4
1996	5,862	469.1	80.0
1997	7,848	674.8	86.0
1998	8,047	1283.4	159.5
1999	9,628	1387.4	144.1
2000	11,123	1268.6	114.1
2001	8,545	683.0	79.9
2002	7,411	441.6	59.6
2003	7,200	480.4	66.7

Table 1 - Global merger activity (1980-2003[1]) (Mergerstat, 2003b)

As stated previously, the transaction being studied cost in excess of US$11 billion, which is large (a factor of thirty nine) compared with an average banking merger, which costs about US$282 million in 2003 (Mergerstat, 2003b).

1.3 Expense of mergers and acquisitions

Mergers are expensive undertakings. The acquiring bank (Bank C) paid almost US$11 billion to acquire Bank B [DOC08C]. In addition to the purchase price the direct

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[1] 2003 is for the year to 31st October 2003

transaction cost exceeded US$120 million [DOC27C]. That does not include opportunity costs, costs not directly attributed to the acquisition or the post-integration costs (which included over US$400 for redundancies charges (Harris, 1999)).

This trend is not unique to the target bank, and the size of mergers (average monetary value of individual deals) is also growing (Mergerstat, 2003b; Bremner, 1999; Time, 2000; Foust, 1998; Business Week, 1998; Mergers & Acquisitions, 1981; BBC Online, 2000b; Spitzer et al., 1999).

In the investment banking industry there are many factors that encourage banks to engage in M&A activity. Many banks wish to increase their capital or asset base (Rowley, 1999; Mergers & Acquisitions, 1998), and this leads to industry consolidation (Laffie, 2000; Bremner, 1999). Changes in the regulatory environment, particularly in the United States (Henriques, 1998; Mergers & Acquisitions, 1998; Anonymous, 1999), means that the traditional boundaries between investment banks and other banks and financial institutions are becoming less well defined (Harrison, 1997), which offers merger opportunities to investment banks. Some banks respond to this by extending their geographic scope (Mergers and Acquisitions, 1998; Gart, 1998; Uhlenbruck and De Castro, 2000), extending their product set (Bawden, 1999; Sikora, 2000), or enhancing their existing market position (Connor, 1985; The Banker, 1999b; Creswell, 1999). Another attraction of M&A is the opportunity to improve their operating environment in terms of efficiency (Hoffman, 2003) or technology cost (Hoffman, 1992).

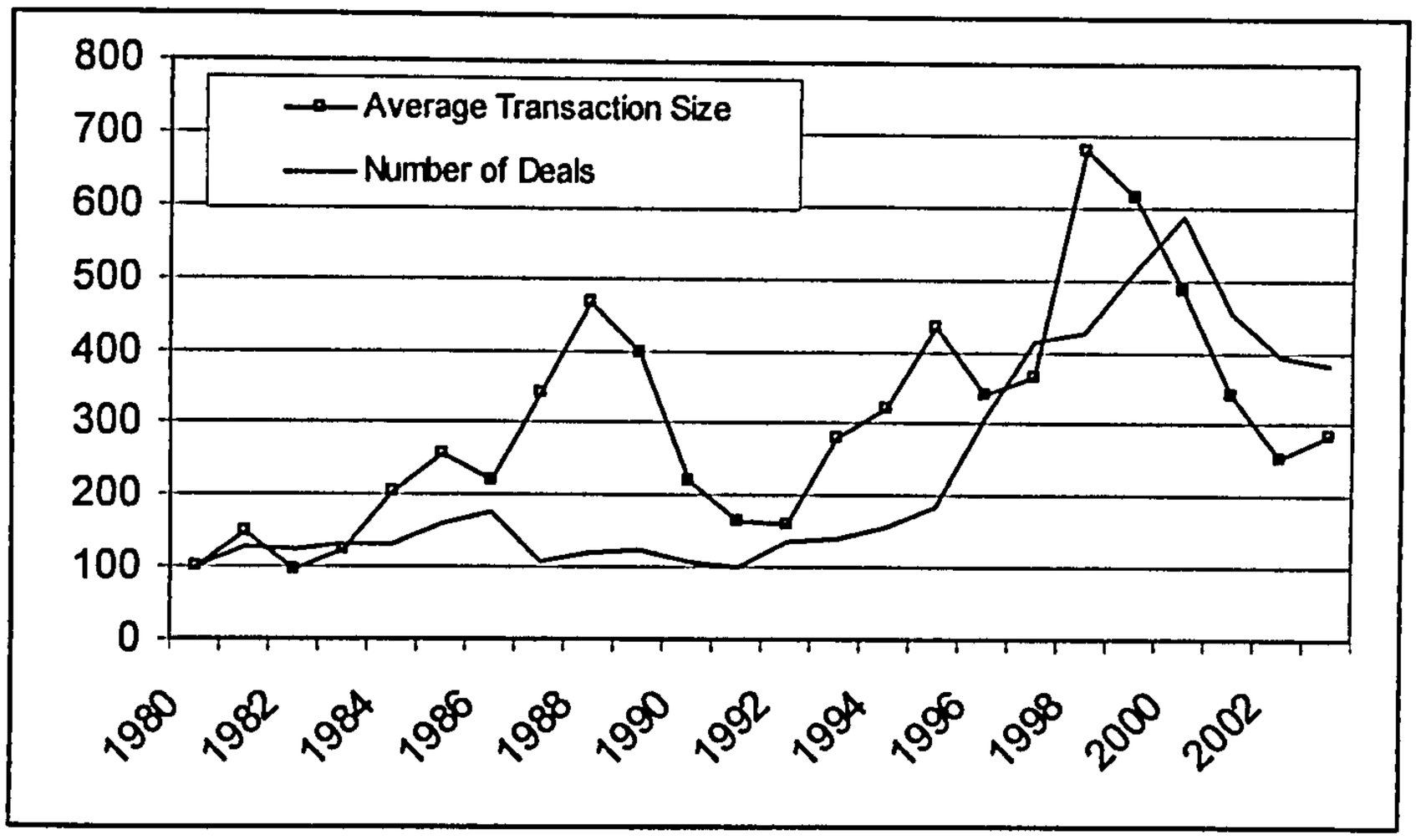

Figure 1 - Global M&A transaction volume and size (Base lined to 1980 = 100)

1.3.1 Failure intensity

While there are many reasons to engage in M&A activity, it is, nonetheless, failure intensive by its nature. There are no specific statistics on merger failure, however, estimates suggest that between 70% (BBC Online, 1999) and 80% (Spitzer et al., 1999) of all mergers and acquisitions fail. Failure is interpreted in its broadest sense, covering everything from the collapse of the merger deal in the negotiation phase before completion due to suitable regulatory approval not being forthcoming or simply the negotiation failing, through to the benefits of the M&A not being realised. For the purposes of this research, failure means failing to attain any of the goals of the merger or acquisition whether they are tactical or strategic, this is similar to view taken by Meeks (1977) in his research.

1.3.2 Expense of failure

When a failure occurs it is very expensive. The failure of the first attempt at a merger between Glaxo Wellcome and Smith Kline Beecham resulted in a fall of over 110 points in the FTSE 100 index (BBC Online, 1998). The damage to a company can range to its reputation being undermined through to it failing to have the resources or capability to grow once the merger is complete. The merger of AOL (America Online) and Time Warner resulted in AOL Time Warner posting the largest loss in commercial history, US$45 billion, as a result of the largest single write-off in commercial history (Thal Larsen, 2003).

Failure of mergers reduces shareholder value (Sudarsanam, 1995). Three long term studies suggest that over time the average effect on the corporate performance of the acquiring organisation (which includes the acquired firm) is never positive. Firth (1980) found no improvement in performance; Limmack (1991) found a negative impact of 4.5% on expected financial performance, and Franks and Harris (1989) found a negative impact on performance of 12.5%. This type of performance is also reflected in other studies by academic researchers (Kitching, 1974; Herzel and Shepro, 1990; Meeks, 1977; Ramaswamy, 1997), practitioners (Habeck, Kröger, and Träm, 2000; Arthur Andersen, 2000; Spitzer et al., 1999), and anecdotal evidence (Currie, 1999) in the public media (Economist, 2000; BBC Online, 2000a; Major et al., 2000).

In addition to the traditional understanding of the risks involved, practitioner and professional sources have recently highlighted other risks that have become more prevalent in the last five years or so. These include the cost of stock options (Van Vleet, 2000), staff retirement costs (Germano and Will, 1998) and an increase in litigation activity resulting from M&A activity (Parker and Balto, 1999) which requires

careful legal management (Drexhage, 1999) which is beyond the capability of many firms and their financial advisers. Additionally, financial markets may not behave as anticipated, which can place the merged organisation under greater strain in managing its liquidity (Foussianes, Harris, and Lavine, 1999), which in turn can limit the firm's tactical and strategic flexibility and impact upon its performance (Das and Elango, 1995).

1.3.3 Unique regulatory requirement

In the United Kingdom, a number of statutory bodies supervise the regulation of mergers and acquisitions. These general regulations separate the acquiring and target company to protect the shareholders' interests. These operate to ensure that the merger is allowable (i.e. not against the public interest) and that it is conducted in a fair and appropriate manner. The main bodies which are interested in protecting the public interest are the Office of Fair Trading (OFT) and the Monopoly and Mergers Commission (MMC). The City Panel on Takeovers and Mergers ("the Panel"), which has implemented the City Code on Takeovers and Mergers ("the Code" – also known as "the Blue Book" because of the colour of its cover), oversees the conduct of a merger. In addition, there is also European Union regulation, and most countries will have their own specific merger legislation, which is important in the case of trans-national and cross-border M&A. This means that international or cross-border mergers may be subject to many different regulations and regulatory bodies. The broad aim of this regulation is to protect the public and shareholders by assessing the validity of the merger and making sure that it is conducted correctly. This results in the two parties to a merger being required to keep a certain distance apart until the merger is transacted, and the Change of Control (CoC) is completed.

This research is conducted in the financial services industry. In the United Kingdom, a single statutory body, the Financial Services Authority (FSA), regulates this industry. The FSA regulates firms that are involved in trading activities in a special way. Like other financial regulators, the FSA requires detailed daily reporting. This reporting can cover many areas depending on the specific business activities of the firm in question. Typically, the FSA requires reporting on capital adequacy (the amount of cash and liquid assets held to cover any outflows that may occur), large equity positions (typical equity holdings greater than 5% in a public company), anti-terrorism and money laundering (activities to "hide" money gained from illegal activities) and exposure to credit (risk of not being paid) and market (losses resulting from movement in market prices) risk.

In order to appreciate the complexity of these regulations, it is necessary to appreciate the complexity of the reporting requirements, and thus, just how difficult they are to satisfy. The easiest to imagine is large equity holdings. Banks, for example, are required to report their holdings of a given stock if the total position is greater than 5% of that total stock issued. It is necessary to gather that information from its trading businesses and systems across the globe. It is possible for a large investment bank to operate many businesses around the world in many different markets. This has to be calculated and reported slightly differently for each country in which the bank operates, for each of the regulators, in order to meet specific local requirements. In addition, many countries have multiple regulators with differing areas of responsibility. The United States has both State (regional government) and Federal (national government) regulators (Anonymous, 1999). To gather this information, calculate it and present it in the correct format in the time allowed is an extremely difficult task because of the

time zone differences. The close of business in New York is only a few hours from the start of business in Sydney and Tokyo. This is complicated further by the need to conduct the reporting across the two enterprises immediately after the CoC. In order to meet these sorts of regulatory requirements straight after a merger, advanced preparation, and integration and co-ordination of business controls are required.

To maintain this level of reporting, the financial regulator requires a high degree of integration from the moment the two firms are legally joined, which is potentially at odds with the need for separation required by the Panel, OFT and MMC. This potential source of conflict does not appear to exist in any other regulated industry, because other regulated industries do not require daily business reporting for the whole of the enterprise.

1.3.4 Merger and acquisition risk

As mentioned earlier, the target organisation had experienced two acquisitions which failed. This is not unusual considering the considerable practitioner evidence to suggest that failure rates for M&As are in the 70% - 80% range (BBC Online, 1999; Spitzer et al., 1999).

Failure occurs when a deal is attempted and is not legally agreed, when transfer of ownership is not completed, or when the deal is completed but in the period following completion, the acquirer or the new merged organisation does not attain the goals which were expected of the deal in the first instance. Research into practitioner attitudes across a number of industries conducted by A.T. Kearney, referenced in "After the Merger" (Habeck et al., 2000:4), suggests that the risk of failure is most likely in the "post-merger" phase, but that the likelihood of failure is only slightly

higher than in the preceding due diligence and execution of the change of control (CoC) of the deal. Their findings are shown in Table 2 - Risk of merger failure.

Phase	**Probability of failure**
Strategy development, candidate screening and due diligence	30%
Negotiation and closing (including the CoC)	17%
Post-merger integration	53%

Table 2 - Risk of merger failure

1.3.5 Regulation

All of this activity is taking place in a changing regulatory environment where some regulators are having to reappraise their position and role (Santomero, 1999), addressing fundamental questions such as how big should a single organisation be allowed to become (Brown, 1999), and some are even having difficulty in keeping pace (McLeod, 1999) with the rate of change.

There have been many high profile corporate scandals in recent years, such as Enron (Stabile, 2002), HIH (BBC Online, 2003a) and WorldCom (BBC Online, 2003b). These have resulted in a greater public awareness which has seen further commitment to improving the regulatory environment, and will almost certainly result in more regulation (Larkin and Casscles, 2003). The most significant changes to the regulatory environment have been the "Public Company Accounting Reform and Investor Protection Act 2000" (Sarbanes and Oxley, 2002) and the continued development of the Second Basle Accord (FSA, 2000a; FSA, 2000b). These changes, plus new regulations centred around conflict of interest (Croft, 2003) and arbitrage (Gimbel, 2003), combined with stricter enforcement of existing legislation (Brewster, 2003), show a desire both to prevent illegal activity and also to reduce organisational risk

because of their impact on stakeholders (Stabile, 2002). This change has been in the pipeline for some time (Winer, 2000), but its goal is complicated by the need to find a balance between corporate performance, risk and accountability (Spira, 2001).

1.4 Motivation

There has been a considerable focus on understanding the merger process in general. This research has tended to focus either on the total merger process (Jameson and Sitkin, 1986; Mahoney, 2002; Pablo et al., 1996), or pre-CoC (Johnson, 1999; Sudarsanam, 1995; Breadley and Myers, 2000) or post-CoC (Chevriere, 1999; Hitt et al., 1996). None of these focus on the change of control period itself, let alone the procedures and controls around it. This even applies to those investigating the technology integration (Robbins and Stylianou, 1999; Robb, 2003), the technology security impact (Tuesday, 2003) or the reward and motivation aspects (Wright et al., 2002). In most industries these are CoC and post-integration activities.

M&A activity, let alone CoC in this specific circumstance, is not well researched. To illustrate this, I examined articles published in the *Academy of Management Journal* and the *Academy of Management Review* during the period January 1995 – February 2003, in which there were twenty-four articles relating to merger, acquisition or takeover activity. Of these three referenced banking mergers. There were no published articles on investment banking specifically, and consequently, none addressed the control issues surrounding the merger that result from the regulatory reporting requirements in an investment bank, which are the subject of this research.

There are three reasons for undertaking this research. The first is personal interest; this is the area in which I work. During the merger under study, I was responsible for the

planning and implementation of the change of control (the weekend when ownership is transferred and the regulatory integration must be transacted) mechanism across both organisations. Because of my experience I feel that this is a poorly understood area, though I had no evidence for this at the time the research began. I wanted to learn about the risks and decision-making involved, so that the next time this type of action is required we could embark on it with a lower degree of corporate risk.

The second reason for undertaking this study is the importance of both the activity and the industry. Over the last twenty years there has been a move towards consolidation in the banking industry, driven in part by globalisation, and in part by the piece-by-piece removal of the 1933 Glass-Steagall Act, which was fully repealed in 1998 (Harrison, 1997; Henriques, 1998). In addition to their organisational complexity, these mergers are also very expensive, with a number exceeding the US$10 billion level.

> *"In the past 5 years alone, over (US) $5 trillion has been spent on mergers and acquisitions (M&A). Although the pace dropped slightly during 2001, an incredible 9,472 deals took place during the course of 2000. With so many mergers and so much money involved, it would be reasonable to believe that the process would be so well understood and broken down into its component parts that it could be placed in the category of exact science by now. Yet most M&As fail."* (Robb, *2003:i).*

The third reason is that for all the importance of the industry, M&A activity, and the risk involved, it is hard to identify any academic research or practitioner work relevant to investment banking change of control. There is a gap in our collective knowledge,

which this research could address. For these reasons, I decided to undertake the research.

1.5 Bridging academia and practice

There are a number of differences between this research and the "traditional" Doctor of Philosophy degree. This is the result of three factors. The structure of the research is different, being composed of three projects. A management practitioner undertakes the research. Finally, a company sponsors the research, which is a requirement for admission to the programme.

This changes the nature and the structure of the research. As will be discussed later, the research and the thesis structure are composed of three pieces of research. More significantly, this research aims to address a practical business issue and as such contributes to management practice, in addition to academic knowledge.

This is an exciting time to undertake this type of doctoral research. The question of how research is conducted and what value it holds has become a highly charged debate. The question as to the nature, and more fundamentally, the need for a relationship between academia and business remains unresolved (Pettigrew, 2001; Tranfield and Starkey, 1998; Tranfield, 2002b; Tranfield, 2002a; Weick, 2001).

My personal experience of this issue highlighted the fundamental nature of the debate with greater clarity than any academic paper. I am sure there are elements of the business community who care little for academics in their "ivory towers". What I found surprising is the number of academics who lack interest in changing this. At a luncheon at the 2000 British Academy of Management in Edinburgh, I sat at a table

where the discussion was not about how to get management research into practice, but if there was value in doing so. This attitude presents a challenge to universities. As universities become more dependant upon private funding, they will need to be able to attract capital from industry. Britain is probably in a strong position to be able to do this, but the conversation needs to move on to how to establish a successful relationship or face a gradual decline into being just education providers. A chance is before us to influence the world as part of its intellectual powerhouses. The DBA programme is a key link between two very different worlds, which must be built upon.

Of course some researchers are responding to this. Weick (2001) identifies the nature of research (frequently too abstract), timing (frequently too late), the generality of the findings, lack of industry information and the nature of the findings (frequently too obvious) as key challenges to be overcome. Thus, while ensuring that the research is academically rigorous, I have constantly aimed to keep it practical and valuable to practitioners.

2 Research design overview

This section describes the research undertaken and presents a summary of it. The research is composed of three projects. The main questions, methods and findings are illustrated in Figure 2 - Project method.

2.1 Thesis and research structure

The thesis is presented in three parts; A, B and C. Part A is divided into three chapters; the linking chapter, a literature review and the discussion and conclusion.

Part B is the three project reports. Part C is the appendices which pertain to the research.

The linking chapter introduces the research, the target organisation, the business issue, the nature of M&A activity, and therefore the importance of this research. It then discusses the motivation for the research, the need to link business practice and academic research, the structure of the research, a presentation of the findings and contributions, followed by a discussion of the findings and their contribution.

Following this is the literature review, a summary of which follows this section, which is completed by the discussion and conclusion.

The first project examines which risks are present during a merger and has a particular focus on the change of control period. It does this by putting together a panel of experts drawn from within the acquiring firm, the acquired firm, industry consultants who worked on the acquisition, and academics. The panel members were first invited to take part in an interview, and then to take part in a Delphi study. The findings of this project identified 55 risks and rated them in terms of significance and mitigation. It found that there was an inverse correlation between the two. From my perspective, this was "irrational" behaviour.

The second project attempts to address the question as to why risk management appears to be "irrationally" managed, as observed in Project 1. To do this the two most excessively (i.e. Mitigation is greater than risk significance) and the two most negligently (i.e. Mitigation is less than risk significance) managed risks identified in Project 1 are examined. This was undertaken by producing a case study for each risk. This analysis is conducted by using an analytical framework that was constructed based

on the theoretical Reconceptualized model (Sitkin and Pablo, 1992) and the Temporal model (Das and Teng, 2001b). This project strongly suggested that industry regulation, organisational controls and outcome history were key risk behaviour determinants in this situation. Based on these findings propositions are produced for each of the three risk behaviour determinants.

The third project uses statistical testing based on data collected in the first project to test the validity of the three proposition pairs from Project 2. This testing supported the findings that organisational controls and outcome history were particularly prevalent.

The final part of this research is the conclusion and summary, which is presented in the final chapter. This section examines not just the immediate findings, but also their impact for managerial research and managerial practice.

In response to the current economic downturn and the growing geo-political risks, it is likely that more organisations will have to operate outside their normal operational domains with ever-greater frequency. The findings of this research suggest that regulators and those responsible for managerial controls need to consider the scope of their controls and regulatory validity, and in addition, put in place people or mechanisms that can be effective when the normal controls are no longer valid.

3 Summary of research

This section presents an overview of the research projects. These are addressed in detail in Part B, the project reports. The projects, their research questions and findings are summarised in Figure 2 - Project methods.

The section describes the three projects in terms of how they are linked, the research question that each answers, the methods followed, results found, limitations of the research and findings

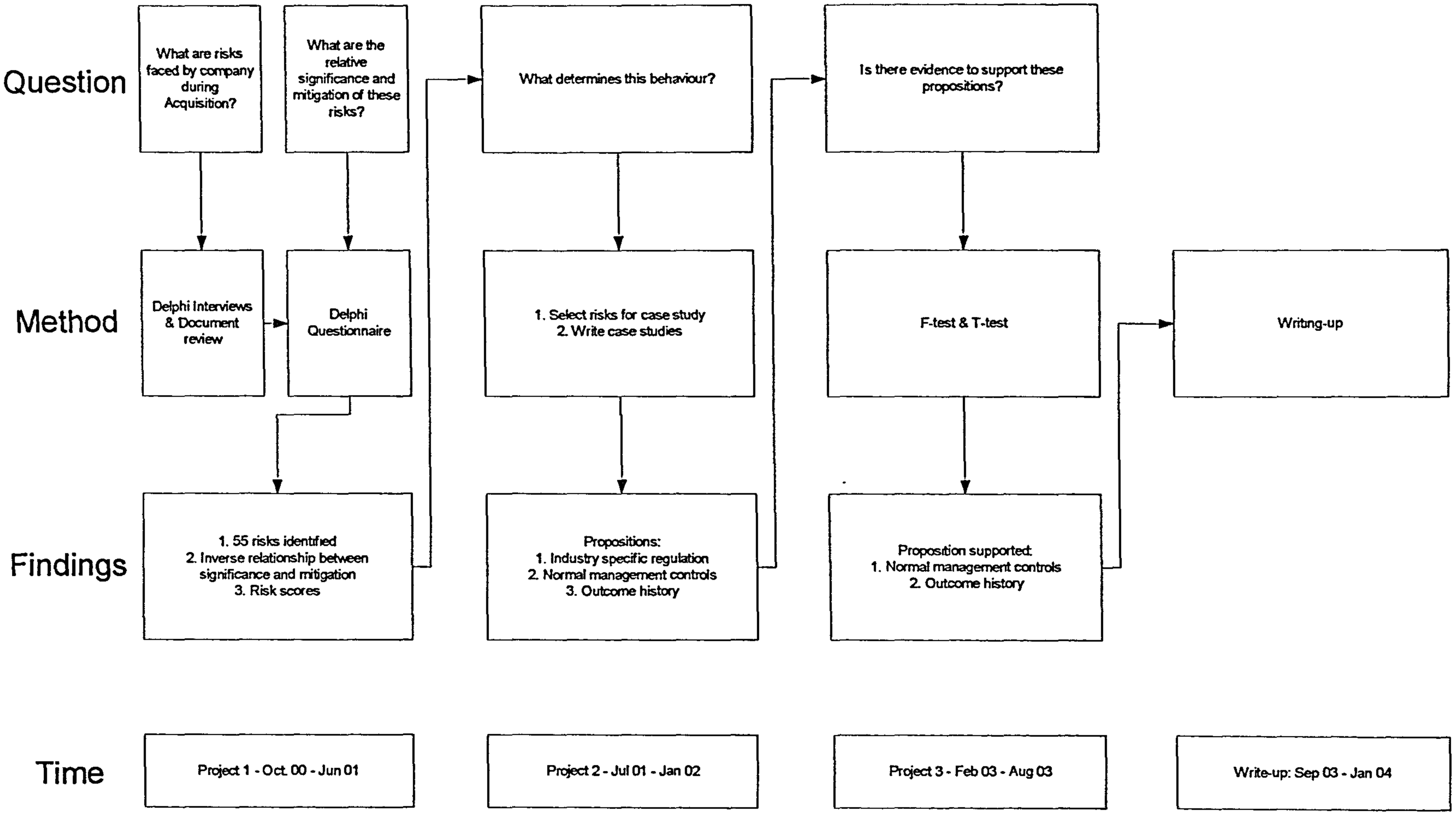

Figure 2 - Project methods

3.1 Overview of literature

The full literature review is presented in Chapter 2. No literature relating to the context of this research (i.e. the management or execution of the change of control period) has been found. The literature relating to the merger context, mergers and acquisitions, banking regulations, the likelihood for failure, and its impact, are addressed earlier in this chapter.

The risk literature is reviewed by examining three broad bodies of research; the classical or engineering theories, the single cognitive factors theories which demonstrate the role of single risk determinant factors, and the integrated theories which combine multiple determinants of risk behaviour.

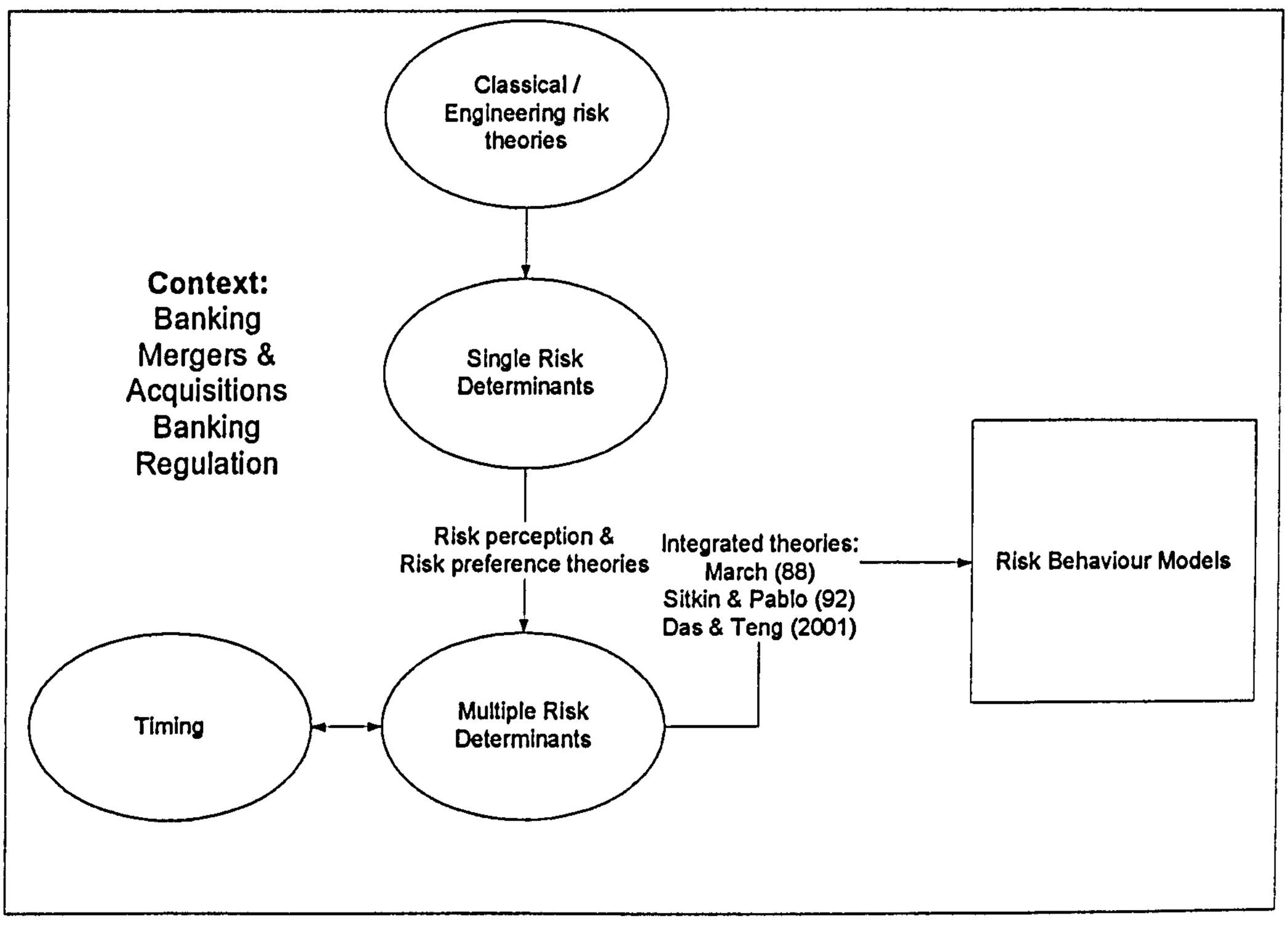

Figure 3- Summary of the Literature Reviewed

3.2 Linking the research

The study consists of three projects, each of which is a stand-alone piece of work, but each project flows into the next, providing the basis for the subsequent research in the next project.

The first project examines a particular event: the merger of two very large investment banks and are referenced in the "document references" section towards the rear of the thesis [DOC08C; DOC20B; DOC21B; DOC22C]. It is a rare activity which happens only once every few years, and from the perspective of the investment bank, it is an extraordinary event. Using a cognitive risk identification and measurement technique based on the Delphi method, the first project identifies:

1. A set of risks; potential events with undesirable outcomes which could befall the organisation while it is undertaking the acquisition

2. The risk probability, impact and how well-prepared the firm is to deal with those risks should they actually occur; and

3. The fact that all the participants recognise the merger model as being representative of the major steps of the merger.

The second project explains why we see the behaviour observed in Project 1. It focuses on four risks which are "outliers" in terms of the proportion of mitigation to significance. It takes two extremely negligently managed risks and two extremely excessively managed risks and examines them. This is not done from a rational, traditional perspective, but rather by examining various cognitive theories; predominantly those of the Reconceptualized model (Sitkin and Pablo, 1992) and the

Temporal model (Das and Teng, 2001b), and applies these to the various situations to identify which risk determinants are appropriate and which are not, in order to understand those outliers. In a few cases, it has also identified where there is evidence of risk determinants coming into play which are not addressed in the theories that underlie the analytical framework. These represent findings that can support the three theoretical propositions.

The first proposition suggests that industry regulation plays a significant role in why we manage certain risks in certain ways when we do so in unfamiliar problem domains. The second proposition examines the role of dominant domain familiarity, and the third looks at the role of organisational controls.

The second project presents a number of possible avenues that warrant investigation which may explain why the risk behaviour is as observed in the case studies.

Project 3 takes the propositions developed in Project 2 and uses statistical population variance tests to decide whether or not these propositions can be supported. The application of this method does not support the first proposition, but does support the second and third propositions.

This chapter brings together the findings from the three research projects that were conducted. It discusses the work undertaken and provides an overall conclusion. It also identifies areas where there are weaknesses in the research, and where there are future opportunities for research. The chapter also examines the contribution made by this research to knowledge and management practice. I also present some of my own thoughts on the work and the process followed. Finally, it covers the impact of this research and its findings.

3.3 Research questions

Primarily this research is about identifying and understanding the risks faced by investment banks when undertaking an acquisition, to understand whether there are any risk determinants which play a particularly dominant role in determining risk behaviour during the change of control and if so, which determinants are they. The first of these questions is addressed in Project 1. Project 1 addresses two questions:

- What risks are faced by the target organisation during this period? and
- What is the significance and mitigation relating to these risks?

Project 2 examines four risks identified in Project 1. The four risks are selected based on the relationship between the significance and the mitigation scores of the risks. The two risks with the largest ratio and the two with the smallest ratio were selected. The project identifies, via a case study approach, which determinants were dominant in determining the observed risk behaviour. Three determinants were found (industry regulation, a successful outcome history and the ability to manage the risk using normal management controls). This answered the second research question.

Project 3 looks for evidence to support the two projects among the data collected in Project 1. It does this by looking for statistical tests that supported the role played by two of the three determinants in the form of the following propositions:

Proposition A – When a risk has a successful outcome history under normal business conditions, the organisation will tend towards excessive risk management behaviour.

Proposition B – When a risk is managed, using effective organisational controls in normal business operation, the organisation will tend towards excessive risk management behaviour.

Proposition C – When a risk does not have a successful outcome history under normal business conditions, the organisation will tend towards negligent risk management behaviour.

Proposition D – When a risk is not normally managed, using effective organisational controls in normal business operation, the organisation will tend towards negligent risk management behaviour.

These propositions apply only in the circumstance under research, that is, investment banks in the unfamiliar problem domain of making an acquisition. By this, the third research question is addressed – which propositions, if any, are supported by the data collected in Project 1, thus identifying which determinants of risk behaviour play a dominant role.

3.4 Project methods

Project 1 used three different methods to answer its research questions. The first was to use interviews to get practitioners to comment on a merger model which was produced to describe the chronological stages of the acquisition. All the participants felt that this model reflected the events involved.

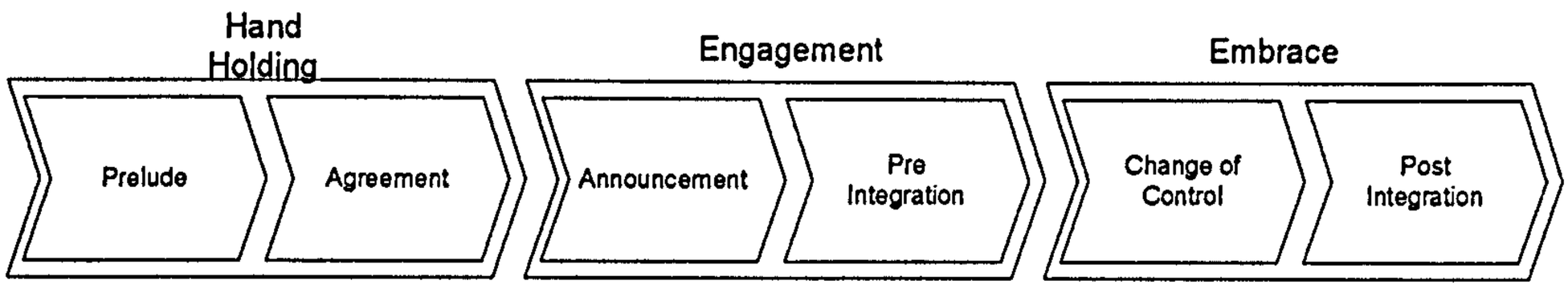

Figure 4 - Merger model

The second method was applied to the company's documentation. The objective was to identify and classify the risks that were formally identified and recorded by the organisation. The first step was to secure the documentation, which was not too difficult because Bank C was sponsoring the research, which meant they were willing to provide it. Such a large volume of data was made available that it became necessary to identify a subset that would be representative and yet small enough to be workable. This set of documents was reviewed and 105 risks were identified.

The third method employed in Project 1 was the Delphi technique, which was used to identify and evaluate risks faced by the bank during the acquisition of Bank B. An expert panel of 14 employees and consultants and one academic was gathered. These were drawn from a potential employee and consultant pool of 70 - 80 people. This population is made up of the individuals who would be in a position to experience the acquisition from both Bank B and Bank C, and not only a single business line. The Delphi method identified 55 risks through the interview phase. By completing two iterations of the questionnaire phase the risks were evaluated in terms of probability, impact and level of mitigation. These risks were also classified using the same classification method as the risks identified from the documentation review. The scores are mapped as follows:

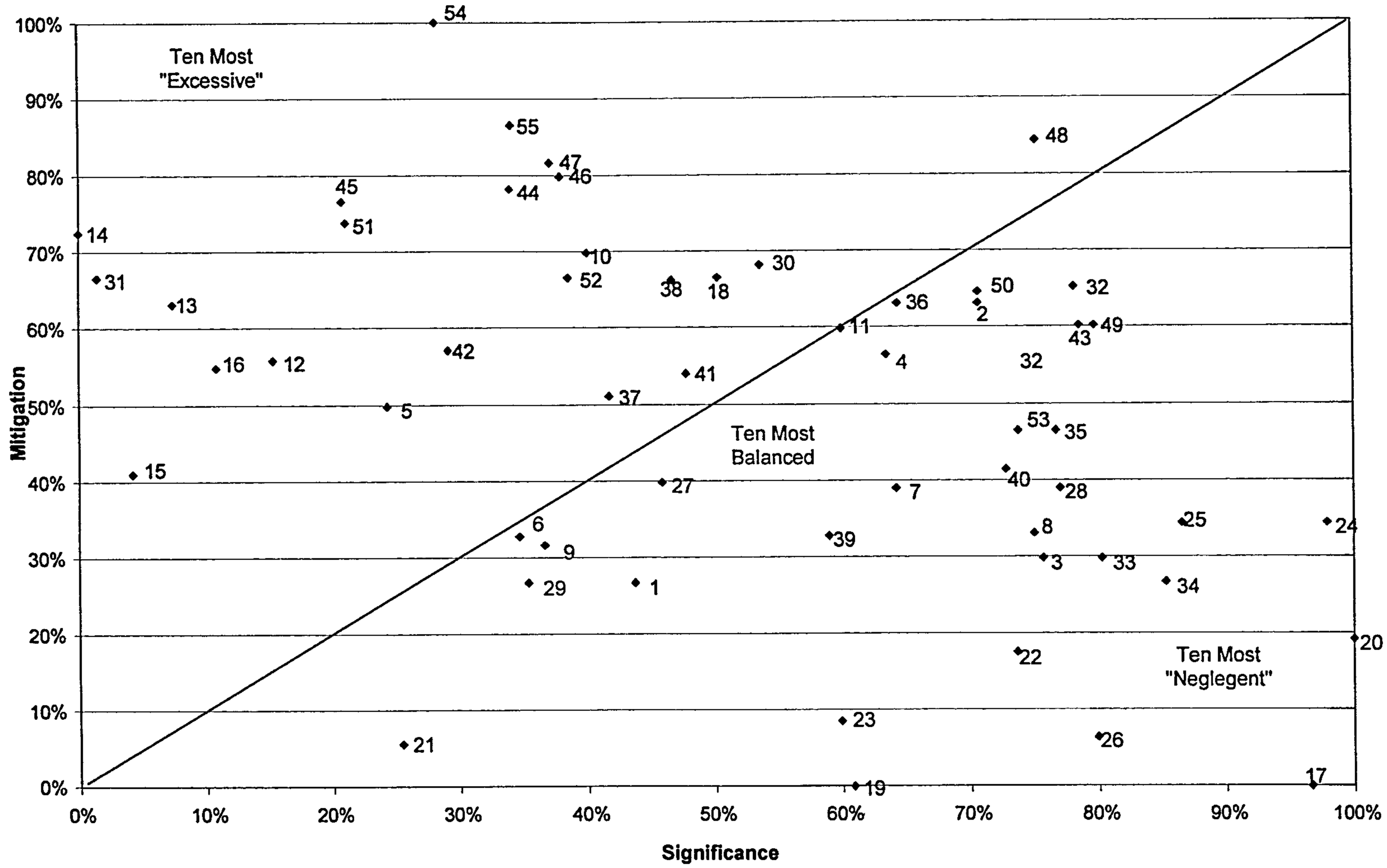

Figure 5 - Significance V mitigation scores from Project 1

The second project is composed of four case studies. Each case relates to one of four "outlier" risks; the two which were the "most excessive" and the two which were the "most negligent". The four risks are:

- Excessive risks
    - Number 54 – Trading desks not aware of their positions at the start of Change of Control
    - Number 31 - Control centre staff become complacent or fatigued due to being overly practiced
- Negligent risks
    - Number 17 - Poor systems may be selected over better ones as a result of the need to rationalise technology speedily
    - Number 20 - Management may focus on the "business" of the merger and not the human resources side of it

3.4.1 Findings

Project 1 finds that the merger model is a suitable description of the chronological sequence of events in the acquisition. The project identified 55 risks which are listed in Appendix H, and arrived at a consensus among the panel of experts as to the level of significance (probability X impact) and mitigation of those risks. The results are illustrated in Figure 5 – Significance V mitigation scores from Project 1.

The research also shows that there is an inverse correlation (-0.41) between the significance of the risk and its mitigation, and that technology is the source of most of the risks faced by the organisation.

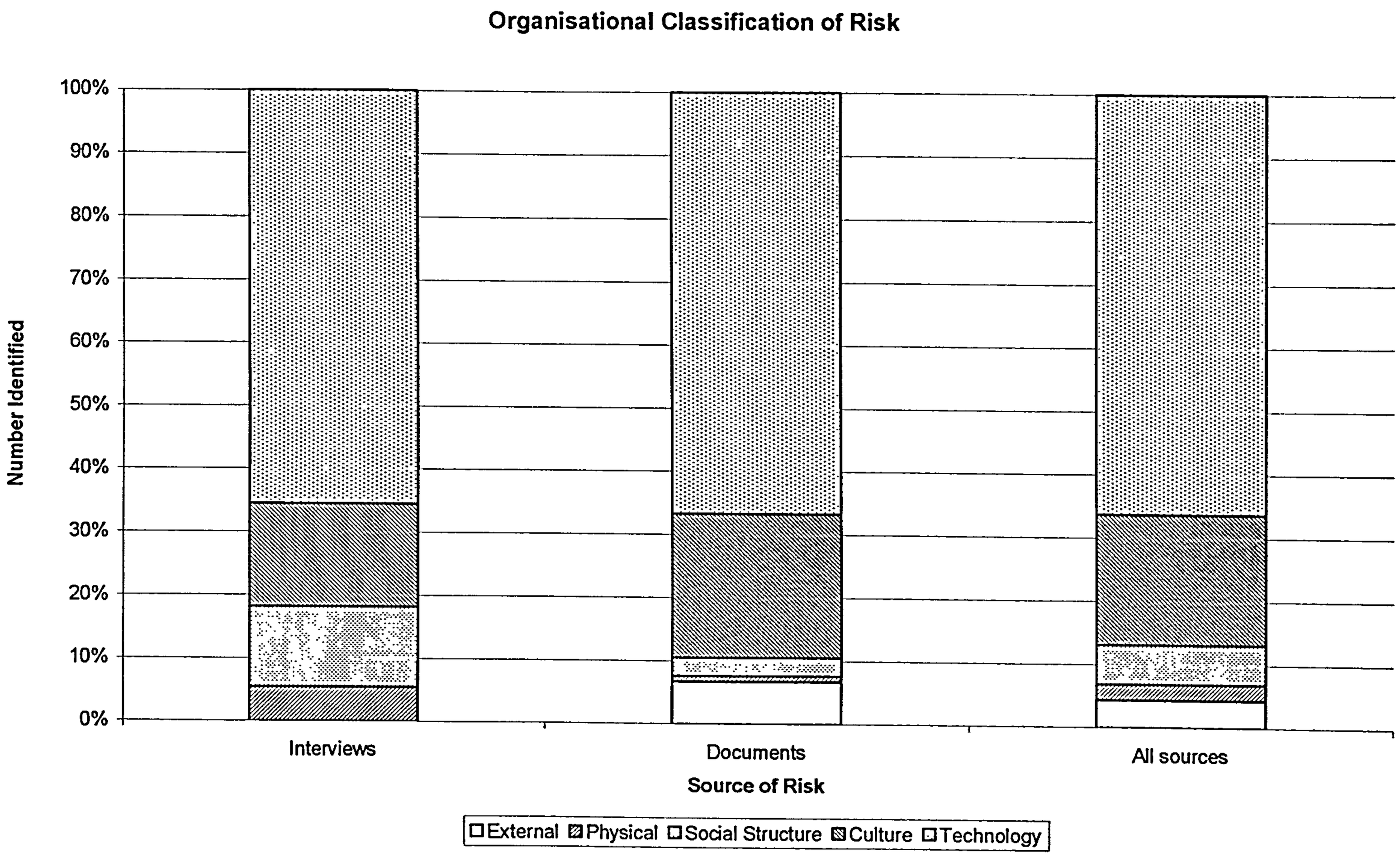

Figure 6 - Risk classification for Delphi, documentary and all risk sources

Project 2 identifies three risk determinants which are particularly important in explaining the risk behaviour observed in the four cases. From these, three pairs of propositions are produced:

Proposition 1 – When a risk is addressed by industry-specific regulation, the risk will be well managed, tending toward excessive management.

Proposition 2 – When a risk has a successful outcome history in normal business conditions the risk will be well managed, tending toward excessive management.

Proposition 3 – When a risk is managed using effective organisational controls in normal business operation the organisation the risk will be well managed, tending toward excessive management.

Proposition 4 – When a risk is not addressed by industry-specific regulation, the risk will not be well managed, tending toward negligent management.

Proposition 5 – When a risk does not have a successful outcome history in normal business conditions the risk will not be well managed, tending toward negligent management.

Proposition 6 – When a risk is not managed using effective organisational controls in the organisation's normal business operations the risk will not be well managed, tending toward negligent management.

Project 3 finds evidence to support four of the propositions: 2, 3, 5 and 6. Propositions 1 and 4 are not supported.

3.4.2 Acknowledged weaknesses

The research that was conducted is subject to four possible limitations on the grounds of practicality. This section discusses what I believe to be the areas where there are weaknesses in the research and explains what was done to minimise them where possible.

The first of these is the sample size. My research is drawn from a pool of 15 individuals. Some took part in all parts of the research, others did not (see Table 6 - Delphi participation data). All things being equal a pool with fifteen people does not generally seem like a large statistical population to draw from, considering that the organisation has over 100,000 employees according to its annual report, see document references section towards the rear of the thesis [DOC08C], however, the activity being monitored is a rare event; furthermore, it is a specialised activity because the constraints that apply in an investment bank do not apply generally. Within these large organisations there are relatively few people who are in a position to have a significant view of the overall activity. I believe that with the acquiring and acquired banks there were probably no more than 25-30 such people in each firm who were in a position to understand the entire project and were also involved at a sufficient level of detail to understand the operations and issues relating to the project. Many board members and senior managers might have been involved, but they would have day-to-day activities that would prevent them from being able to get involved in the details of the acquisition. The number of active participants is twelve, just one below the number generally considered to be the optimum for Delphi research (Dalkey, 1969; Mandanis, 1968; Helmer, 1968; Fourlis, 1976; Jenkins and Thoele, 1991; Linstone and Turoff, 1975). The sample group is drawn from a number of population subgroups

(managers, staff, and consultants for example) which gives an appropriate structure (Black, 1999). The sample population at 15 represents at least 25% of the total population and is therefore a reasonable number of people to draw from this total population.

The second limitation of the research is that the data is from one industry, investment banking. Without further research it could not be claimed that the findings in this research are generally applicable, and this therefore is a weakness of the research. Though conducted within one industry the research findings are not necessarily unique to that industry. By this I mean that the research examines how an organisation behaves outside its normal operational domain. It is true that the organisation is an investment bank; it is also true that the activity is unique to its industry, and only because it is outside the normal operational domain is it a rare event. Nonetheless, organisations are continually being challenged to operate outside their operational domains, so it is possible that the findings of this research are more generally applicable, and I think that further research would support this view. The reason for believing this is that it is understandable that people should try to make sense of the situation by holding to existing controls, as observed in other research (Weick, 1993). The high reliability organisations that have been studied have been able to operate beyond normal control structures (Weick, 1987; LaPorte, 1988; Roberts, 1990; LaPorte and Consolini, 1991; Brown, 1993) the ability to improvise (Weick, 1998; LaPorte, 1988; McCay, 1999) and creatively make sense of the unveiling situation (Weick, 1988; Weick, 1993).

A third potential weakness is that the data is in some way biased toward a certain position or viewpoint. Because the research activity is limited to a small number of

people, in many ways it is research among a group of "insiders". Most are employed by one of the two firms. Almost all have experience of that industry and would perceive themselves to be part of that industry. It is possible too that, as a researcher, I could input bias of some description. To protect against this the research has been conducted in a systematic and objective manner. As part of the tightly knit group under study I could influence the findings. However, this is a risk with many forms of research, such as co-operative enquiry (Reason, 2000). This challenge has been faced in other studies, such as "classic" (Yin, 1994:4) pieces of research like "Street Corner Society" (Whyte, 1943-1955). This does not invalidate the research, but it does serve as a constant reminder of the need to be aware of it.

I have addressed this throughout the research in a number of ways. While acknowledging that those who input information to the research are a small and somewhat closed group, I have tried to involve people who are not just employees of the firm. I have tried to gather information from consultants and people with a wider range of backgrounds within the firm, and not only people from a single level within the firm. I have involved an academic in the starting process. So, from the start, the panel is as balanced as can be achieved. Of course, ultimately the interview data drives much of the discovery of risks. The risks identified define which risks are evaluated in Project 1. These risks form the basis of the cases in Project 2. Because of this I have taken a number of steps in constructing the questions in such a way as not to lead people down any particular route of thought or enquiry within the scope of the research. The interviews are semi-structured; there are a number of open questions. This is a mechanism to keep the responses as unbiased as possible. It is important to recognise that the research has a scope and that the scope, in turn, has resulted to a

certain degree in shaping the open questions. As I have focused on the risks relating to the merger, it is conceivable that that might drive a certain bias in the minds of the respondents.

The more difficult source of bias to address is the bias that could be influenced by myself as a researcher. There are a number of reasons why I am concerned about this. Firstly, I have approached this research in a fair-minded and pragmatic way. I have been very positive in terms of the mechanism and method of research. I don't particularly feel that I need to excuse this, but at the same time I have to recognise it and realise that it does tend to lead one toward more black and white views of what is being studied. It also leads one to a black and white understanding of what is being observed. That is most prevalent in the first and third research projects. I also have a leaning toward the classical views of risk management. Because of this, I expected certain forms of behaviour. In my defence I was willing to recognise the limitations of this view and consider other motives to explain the behaviour. To conduct the second project I had to make myself engage closely with more subtle and "greyer" explanations for risk behaviours, and reconsider my own positions. This is a very positive process and is a crucial part of education, particularly at the doctoral level.

Embracing the mindset of cognitive theories allowed me to consider other explanations. It allowed me to consider the organisation's needs, preferences and perceptions of a whole set of risks that it faced. Out of this I am able to propose a number of ideas that would explain some of what was observed and provide a degree of refinement and enhancement to works of the likes of Sitkin and Pablo (1992) and March (1988). These frameworks should be considered as enhancements to the preceding work.

The other major source of data is the documentary data. This provides extra detail describing the cases. It is a formal record and is therefore subjective to a degree, if interpreted as a result of organisational conflict. It too can be subject to bias. As someone who works in a large organisation I understand that one can write formal documentation from various perspectives; from one's own perspective, from that of the intended audience, or that of actors who are not currently involved. We live in a litigious age (Parker and Balto, 1999), as this is being written, many financial firms in the United States are being investigated by the New York State Attorney's Office. Those investigations show that what many organisations have shown in formal published documentation does not necessarily concur with what the individuals within the organisation believe.

A final influence is that I was a participant in this merger process. I need to be cognisant of this, and not act in a way that justifies any decision or action I have taken during the period under study. It also makes me see that in performing my role in the organisation I may have contributed to excessive controls within the organisation. I was responsible for the Change of Control mechanism and the Control Centre, so I approached this problem with a high degree of domain familiarity. And from the research it is clear that this was excessively managed, and I have contributed to this effect.

3.5 Future research opportunities

As a result of this research I see new opportunities for further research which hold the promise of certain benefits for management practitioners, and which I believe would enhance our understanding of risk management.

The first opportunity relates to generalisation of the findings. While I believe that the findings are probably valid in the context of regulated organisations operating outside their normal operation domain, it would certainly be valid to test these propositions across the financial industry, and probably across other similar industries.

Some of the findings from this research, in particular those from Project 1, are significant. For a management practitioner they are "attention grabbing". It is significant to have a numerical quantitative measure based upon a qualitative research method that shows that an organisation is behaving irrationally. It shows the areas in which it is behaving irrationally and illustrates the nature (excessive or negligent) and the degree of that mismanagement.

From the data collected in Project 1, meta-data relating to the risks was also gathered. This describes the characteristics of those risks, such as the degree to which the risk was subject to formal control, or its timing in the merger process. Initial data analysis was performed upon these similar to the analysis used to test the propositions in Project 3. Some of these are statistically different from the remainder of the population. From this I believe that certain characteristics may also be determinants of risk behaviour. The results are shown in Appendix D and Appendix M. These should be investigated. The potential determinants are:

- Use of formal controls
- Problem domain familiarity
- Degree of impact on the change of control
- Culture
- Physical nature; and

- When the risk impacts.

As a result of this, further research is required within investment banking and other industries to ascertain what role, if any, they play in determining risk behaviour.

This work has combined the previous research of both Sitkin and Pablo (1992) and Das and Teng (2001b), so it provides a richer model for the understanding of risk behaviour. The findings broadly enhance the model proposed by Sitkin and Pablo. Interestingly, the cases studied showed that the expected results and the actual results in three of the four cases varied in terms of behaviour, and the role of temporality in the form of future orientation. This causes me to question the importance of future orientation in moderating risk behaviour in these circumstances. It is possible that the findings of Das and Teng are not applicable in these circumstances.

I do believe their general observation relating to temporality, and in particular, future orientation, are important and valid. I think they are contributors and modifiers to our risk behaviour. I also think that the actual findings do not bear out what they proposed and so we must be prepared to accept that, in this situation, temporality is impacting upon behaviour.

4 Personal reflections

This section presents my own personal learning and observations that have come out of the research and undertaking the research process.

4.1 Learning

I started this DBA research as an examination of high reliability control research. I did this for a number of reasons, the two most important of which were my personal faith in the ability of control mechanisms to prevent undesirable outcomes, and secondly, my belief (prior to the events of WorldCom and Enron) that the capitalist system was at risk of being undermined by the lowering of both ethical standards and controls in corporations. Failure of these controls can and may by now have started to push civilisation towards a more unstable future.

As preliminary reading and research got under way I quickly realised that, important as these issues were, if we could not understand the risks and how we are inclined to respond to them, then we would never be able to protect ourselves from them.

The second piece of learning for me was to gain an appreciation of the academic approach, in particular the need to consider one's own view of reality and being (ontology) and to consider the methods, validity and scope of knowledge (epistemology). Thinking about ontology and epistemology has caused me to question what is presented to me in my daily work. It has become much harder to accept "facts" presented just on face value alone.

I also discovered that the DBA process is a solitary and lonely one. Like much of life you are responsible for your own motivation, application and progress. However, you are also engaged in a process over time in which you are acting in isolation from your university cohort. For me this has resulted in a very strong need to take advantage of the DBA structure and the points of contact with both class mates and staff. The process, in both of the banks for which I have worked during this research, places the

individual in isolation from their colleagues and employer in the work environment. In a competitive career the title "academic" is a dangerous one to earn. I am certain that my research activities have impeded my progress (in the short-term) at work. This is because the perception of being academic is not a particular advantage. It is a demand on my time, and my continuous questioning can cause me to focus on aspects of a problem that are not deemed to be of great value to a commercial organisation where we live by the 80/20 rule.

It seems to me that the public, and business as a whole, is crying out for leadership in the fields of ethics, governance and related areas. We need to provide answers to these issues, but must do so in a way that is meaningful and applicable.

CHAPTER 2: LITERATURE REVIEW

This section presents the theoretical position from which this research is conducted. It examines published literature addressing the nature and definition of risk, decision-making under uncertainty, in particular examining risk determinants and how they relate to risk perception and risk preference. It will also look at the role of individual risk behaviour and organisational risk behaviour. As the context of this research is very important literature relating to mergers and acquisitions, in particular in banking, will be reviewed in order to explain the procedures and the motivations for this activity.

1 The nature of risk

There are two broad views about risk and how we should respond to it. One view is the classical engineering view (Brown, 1993), the other is a more holistic view often referred to as a cognitive view. The engineering view deals with the quantitative qualities of risk, while, the cognitive view deals with the perceived aspects of risk. Correspondingly, the engineering view promotes a quantitative understanding of risk that fits well with classical theories. While it is attractive to consider these two views to be at opposite ends of a subjective-objective divide that would be incorrect. There are many researchers who take a cognitive perspective but explain their work in engineering terminology (Brown, 1993; Tversky and Kahneman, 1973; Kahneman and Tversky, 1979; Slovic, Fischhoff, and Lichtenstein, 1980; Kahneman and Tversky, 1984; Pidgeon, Jones, Turner, and Gibson, 1992; Sitkin and Weingart, 1995).

This section addresses the concept of risk and its constituent elements. These elements are hazard, probability of occurrence, scale of impact and in the case of this research the perceived level of preparation or mitigation of the risk.

Though the term "engineering" is used to represent this body of knowledge by many authors such as Brown (1993) and LaPorte and Consolini (1991), it is not wholly appropriate as it is applicable to many areas such as toxicology and epidemiology (Crossland, Bennett, Elis, Farmer, Gittus, Godfrey, Hambly, Kletz, and Lees, 1992). It is a rational and quantifiable approach which allow managers to make "rational" decisions. As such it belongs to the "classical" body of literature (Hatch, 1997) of organisation theory. The terminology and understanding of the relationships relating to this field have been defined in many countries as part of the national quality standards such as the British Standards Institute (BS), International Standards Organisation (ISO) and Deutschland Industry Norm (DIN). For the purposes of this research I have selected the British Standard BS4778/1991 (British Standards Institution, 1991) as the basis for my terminology.

BS4778/1991 has a number of key concepts. Those most relevant to this work are "hazard" and "risk".

Hazard - A hazard is the potential for an adverse consequence resulting from a single event, sequence of events or a combination of events. Hazards can be classified according to their potential effects in such terms as safety or economics (Warner, 1992).

The BS4778/1991 definition of hazard is:

"reduced to a single subjective correlate of a particular aspect of a risk, such as the product of the probabilities and consequences of an event" (Warner, 1992:i-111)

He then proceeds to mention other factors, such as public perception of risk, the manner in which risk information is transmitted, the acceptance of risk as an element of the nature of life, the ability of humans to handle risk, and differences of opinion about how risk can be handled (Coppola and Hall, 1981). Finally, he raises the question of the difference between risk assessment and risk management. In doing so he poses the question of whether certain groups (e.g. scientists) have a preference for or acceptance of risk that is different from other groups.

Some instances of risk are measurable. They have quantitative properties that, to a point, can be defined and predicted. But in reality, in order to manage risk, consideration has to be given to a vast array of other cognitive factors that will play a role in determining which risks are addressed, and how they are addressed. These problems are not addressed by the engineering risk literature, but rather by the literature relating to risk perception and decision-making under uncertainty.

The classical view of risk is that it involves a trade-off between risk and expected return (March and Shapira, 1987). Furthermore, risk can be understood as reflecting "the distribution of possible outcomes, their likelihood, and their subjective values" (March and Shapira, 1987:1404). This perspective is often referred to as the engineering view (Brown, 1993). This approach to risk management is highly rational.

Risk can be classified as falling into one of three categories, similar to those put forward by Cohen and Pritchard (1999), which are:

1. Risks for which statistics of identified impact are available

2. Risks for which there may be some evidence, but where the connection between cause and impact in any individual case cannot be traced (e.g. developing cancer after exposure to radiation); and

3. Risks for which there are estimates of provability for events which have not yet happened.

In addition, Crossland et al. (1992) identify another category of risks which are not foreseen.

1.1 Determinants of risk behaviour

It is easy to imagine that we behave in a very rational manner, as proposed by the classical or engineering model. However, even ancient observers have been aware that there is an apparently irrational side to human risk behaviour. Catullus (58 B.C.) observed that people could act in a manner that was contrary to their own self-interest.

The possibility that there might be cognitive factors which determine one's approach and behaviour to risk was first recorded in the eighteenth century with the observation in 1738 by Bernoulli of the "utility of money" (Bernoulli, 1954). Bernoulli's focus was more on what we would call "game theory" than on risk management. He observed that most people, if given the choice of whether or not to play a game of 50/50 for the same prize/loss, would decline. In terms of probability and reward there is as much chance of winning as there is of losing, and so the statistical probability of each combined outcome is neutral.

Bernoulli called this inclination to consider the loss of money more significant than the gain, the "utility of money". A £1000 loss is more significant than a £1000 gain and so a 50/50 chance of losing is more significant to us than a 50/50 chance of winning.

$$Average\ Outcome = (Probability_{win}\ X\ Impact_{win}) + (Probability_{loose}\ X\ Impact_{loose})$$

i.e.

$$0 = (0.5\ X\ 1000) + (0.5\ X\ -1000)$$

Equation 1 - Average outcome of Bernoulli's game

I found these two early theories useful because they indicated the type of "mindset" that I would require to understand the risk behaviour identified in Project 1. Later work by Neumann and Morgenstern (1945) validated Bernoulli's findings. In addition, they investigated the politics of risk and risk decisions. They discovered that risk is not just a simple probability and outcome equation (as traditional engineering literature would consider it) but is related to whom it impacts, the political element.

This work demonstrated that while risk itself is related to impact and probability, our ability to respond to these includes other factors such as the utility of money and political risk. One cognitive sociologist observed that:

> *"To assess perceived risk it is necessary to estimate the probability of outcomes and to evaluate the magnitude of the outcomes. These are not observable measures."*
>
> *(Wallsten, 1980: ix-xv).*

It is with this type of statement that the cognitive and engineering literature share terminology, but not necessarily understanding.

Most researchers have focused on single determinants of risk behaviour (Sitkin and Pablo, 1992), both at the organisational and individual level. Like a number of researchers in this field, such as March and Shapira (March and Shapira, 1987), Sitkin and Pablo (1992) and Weiek (1996a), I feel this is too simple an explanation for complex behaviour. In addition, a number of determinants have had conflicting evidence presented about their role. Kahneman and Tversky's "prospect theory" (1979) is quite at odds with research into the role of prior risk behaviour. Kahneman and Tversky found that individuals who protect prior gains are risk averse, but both Osborn and Jackson (1988) and Thaler and Johnson (1990) found the opposite to be true. Even so, many researchers have investigated single determinants. This section presents firstly the various theories around single determinants, and then three attempts to present unified understandings by Sitkin and Pablo (1992), March (1988) and Das and Teng (2001b).

1.1.1 Risk propensity

This section examines determinants which relate to risk propensity, and explores theories relating to risk preference, inertia and outcome history.

Decision makers within and organisation may display a certainty propensity for risk. This can vary from individual to individual. One of the factors that influences this is the individual's own desire to seek or avoid risk. This is called "risk preference". Kogan and Wallach (1964) showed that there is a varying disposition toward risk among different people. There is also a relationship between achievement orientation (McClelland, 1961), managerial position (Brockhaus, 1980; Sitkin and Weingart, 1995) and gender (Siegrist et al., 2002) in determining risk seeking and avoidance behaviour. Personal experience and beliefs (Wildavsky, 1988; Slovic, 1972) and cultural

background (Douglas and Wildavsky, 1982) can also have a deterministic effect on an individual decision-maker's personal risk preference.

Individual risk behaviour has generally been found to be consistent over time (Heath, 1998; Kogan and Wallach, 1964; Rowe, 1977; Slovic, 1972). In practice this "risk inertia" means that an individual who has tended to be conservative in the past will tend to be risk-seeking in the future, and one who has been risk-seeking in the past will tend to be risk-seeking in the future. This is context dependent, which means that a decision-maker can be risk averse in one context and be a risk taker in another.

The history of outcomes of a decision-maker's experiences can influence their risk decision processes; this is often called "outcome history" (Thaler and Johnson, 1990). This can operate in different ways. Successful outcomes from risky decisions in the past can encourage one to take further risks, but can also encourage the opposite behaviour (Thaler and Johnson, 1990). To modify an example from Thaler and Johnson's work, if an individual had been flipping a coin and it had turned up "heads" five times in a row, they might be inclined to bet that it would be "tails" the next time, because their perception is that six "heads" in a row[2] would be unlikely. At the same time, the fact that they may have been lucky in picking "heads" might just as easily encourage them to pick it again.

The nature of the outcome itself is also a factor in the role of outcome history. Where risks have significant negative outcomes which happen rarely (such as the recent Foot and Mouth outbreak), Staw and Ross (1987) found that there tends to be a narrow

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[2] Of course, the probability of six 'heads' in a row is exactly the same as five 'heads' in a row followed by a 'tail'.

focus on future possible actions. During the recent Foot and Mouth epidemic scientific advisors working for the Department of Agriculture were not willing to consider other courses of action for managing the spread of the disease, such as vaccination, even though this might have aided the situation (Mason, 2003). Where these large losses are more frequent it is thought that a state of learned helplessness (Seligman, 1975) and a more passive management approach may emerge. Where intermittent minor risks occur, reinforcement and the history of failed outcomes will lead to varied responses; indeed experimentation could be expected (Sitkin, 1992).

1.1.2 Risk perception

This section examines the risk determinants relating to risk perception. It explores theories relating to the perception of risk consequence, acceptance, problem framing, top team homogeneity, social and cultural influences, organisational controls and problem domain familiarity.

When making decisions with financial outcomes we tend to look at small outcomes in terms of winning of losing, while large outcomes tend to be viewed as changes in wealth (Vlek and Stallen, 1980). Generally we tend to be more cautious in the face of potential wealth changes than in the face of small losses or gains (Kachelmeier and Shehata, 1992; Ranjith, 2002; Tversky and Kahneman, 1973). This means that the "risk consequence" is also able to influence risk behaviour.

The tolerance for risks of a certain nature can be very different between groups of people (Allman, 1985). There is, for example, a great degree of difference between experts and lay people (Allman, 1985). Allman quotes research showing how these two groups rate a series of risks in terms of the chance of dying in a given year as a

result of them. The two groups rated the risk quite differently. Out of a list of 30 risks the public rated nuclear power as the most likely, which the experts rated as 20th. An explanation offered for this is that certain risks are acceptable and so people are happy to take them, while other substantially less likely risks are not. As a society we sometimes codify these ideas of risk acceptance into formal rules, an example being the legislation relating to land-use planning (Health & Safety Executive, 1989) and informal perceptions, an example being that of smoking, which although much more risky than living close to a nuclear power plant, is more acceptable. It is surmised that some risks are therefore more acceptable (Allman, 1985) because they have localised impacts (smoking has a high probability of death, but usually only kills the smoker) while others are not because they have societal impacts (a nuclear power accident is very unlikely, but if it were to occur, could destroy a whole community). This nature of the outcome and acceptability should also be considered in terms of risk consequence, discussed earlier.

What is considered acceptable or "safe" may also be influenced by organisational culture. Rochlin (1999) found the idea of safe operation was partly a social construct.

How we respond to risk and uncertainty can be influenced in terms of how the risk is presented (Kahneman and Tversky, 1979). This is referred to as "problem framing", and the theory to explain this is often referred to as "prospect theory" (Kahneman and Tversky, 1979). Prospect theory proposes that the way we evaluate risky decisions is influenced by how the options relating to the risk are presented.

An example presented by Kahneman and Tversky in their 1979 paper showed that when they presented the same possible responses to a risk in different ways, depending on the way in which the options were presented, the action people were likely to select

would change. This means that the way in which a risk, or the options to respond to it, is presented, impacts the options that are selected.

Positive framing may operate because presenting the risk in a positive light directs management's focus toward the benefits and opportunities at the expense of focusing on the potential downside (March and Shapira, 1987). Negative framing of a risk can bring about risk avoidance by causing threat-rigidity responses (Staw et al., 1987) or hyper-vigilance (Janis and Mann, 1977)

The homogeneity of the senior management team is the most frequently cited factor that influences risk behaviour (Sitkin and Pablo, 1992). This is sometimes referred to as "groupthink" (Janis, 1972; Brockhaus, 1980; Wright and Schaal, 1988). Theorists believe that companies prefer certainty to uncertainty as part of the organisational risk profile (Douglas and Wildavsky, 1982). Research has also found that low risk companies actually perform better (Brown, 1993).

The experience of leaders (Jacofsky, Slocum, and McQuaid, 1988) can also shape the top team's risk behaviour in a manner not unlike the experiences of the individual. Leaders shape the organisation's culture in relation to risk by adding their personal legitimacy toward risk avoidance or propensity.

Research has also shown that both national (Douglas and Wildavsky, 1982; Hofstede, 1980; Douglas and Wildavsky, 1982; Tromperaars, 1993) and organisational (Janis, 1972; Wright and Schaal, 1988) culture can exert considerable influence on decision-making. Davis-Blake and Pfeffer (1989) propose that organisations are "strong situations" which can dominate other potential individual perceptions and behaviours because they channel individual attention and action. This view is also supported by

Snyder and Ickes (1985). The role of culture is supported by the influence of the organisational culture and its leaders (Martin, Sitkin, and Boehm, 1985; Schein, 1985). A concern with this is that as individuals become socialised they can come to accept perspectives which can shape they way in which they address problems (Louis, 1980). "Organizational members come to view their world through the lens of their organisation's culture, which can distort their perceptions of situational risks, sometimes by overemphasizing or underestimating risk" (Sitkin and Pablo, 1992:21).

The organisation's control structure influences the company's risk behaviour (March and Shapira, 1987; Sitkin and Pablo, 1992). Furthermore, the reward, punishment, monitoring and evaluation of risk behaviour (Ouchi, 1977) will contribute to determining risk behaviour.

Controls can also be used to create environments where risks are less likely to happen (Flint, 1981; LaPorte, 1975a; LaPorte, 1988; LaPorte and Consolini, 1991; Roberts, 1990; Weick, 1983; Weick, 1988; Weick and Roberts, 1993). Research into activities similar to mergers, such as strategic alliances, show that the likelihood of less risky behaviour is founded on the balance between control and trust (Das and Teng, 2001b).

Research also shows that controls cannot eliminate risk (Perrow, 1984; Reason, 2000; Reason et al., 2001), and indeed in a crisis the organisation may benefit from abandoning the appropriate controls (LaPorte, 1988; Weick, 1993; Weick, 1996b; Weick, 1996c).

The importance of the history of risk-taking has already been discussed, and the degree of familiarity with the problem domain acts as a similar risk determinant. Experience allows managers to identify those parts of a problem (problem domain familiarity) that

they have experienced before, and this helps them to make a decision (March and Shapira, 1987). This also fits well with "availability theory" (Tversky and Kahneman, 1973), which proposes that in making a decision, we evaluate potential courses of action in the order in which they "come to mind". This would be impacted by the degree of familiarity with the domain and certain possible options. Familiarity also supports the escalation commitment model (Staw and Ross, 1987), which proposes that our ability to accept risk increases with experience.

1.2 Multi-determinant perspectives on risk behaviour

Each of the theories presented so far explains risk behaviour as the result of a single risk determinant. As expressed earlier, I consider this to be too simplistic a view to take of organisations and their behaviour. In looking at the complexity of organisations I can see that decisions are made based on various factors coming into play. This view is echoed by many contemporary researchers. "Organisations are some of the most complex phenomena studied in the social sciences" (Jenkins and Ambrosini, 2002:21). Weick and Roberts describe the "collective mind" (Weick and Roberts, 1993) of the aircraft carrier "organisation". Decision-making is carried out by many people working together to achieve their part of the overall goal. The complexity of the organisation makes it necessary to consider it as having multiple strands working and interrelating concurrently (Koot, 2002). I cannot see any reason to suggest that decision-making in unfamiliar domains should be any different. A growing number of management researchers are taking the view that organisations are so complex that we cannot expect to understand them using simple models (LaPorte, 1975b; Tsoukas and Hatch, 2001). Some researchers have been concerned with the impact of practitioners thinking that there is a single solution, a "silver bullet", to

organisational issues. Responding to this is a renewed focus not only on the complexity, but also the ambiguity of organisations (March, 1978; Hatch and Ehrlich, 1993). In general, organisational research has seen attempts to bring various ideas together (Weick, 1996a; Weick, 1998; Schultz and Hatch, 1996) and create a new language for the organisational discourse (Hatch, 1997; Hatch, 1998). Such attempts have of course met with both resistance and support (Hatch and Weick, 1998). This attempt to combine paradigms and find new ways of looking at organisations is also reflected in the field of risk. There have been three attempts to create integrated theories to address multiple risk determinants which may modify perception and propensity simultaneously. These three attempts are the "Reconceptualized model" (Sitkin and Pablo, 1992), March's model (1988), and the "Temporal model" (Das and Teng, 2001b).

Sitkin and Pablo's (1992) "Reconceptualized model of risk behaviour" is a significant attempt to bring these together.

Human decision-making is far too complex to be explained by relatively simple theories such as taste or availability. It is clear to me that decision-making is driven by various factors all operating at the same time. I can imagine that the relative importance of these factors varies from person to person and from situation to situation.

Like other researchers (March, 1978; Sitkin and Pablo, 1992; Das and Teng, 2001b), I believe that in most cases the risk decision-making process is not driven by a single determinant, which is not to say that there are not cases where one risk determinant does dictate. At any given time various determinants are contributing to the risk

behaviour. A number of researchers have pursued this approach, and have tried to bring various single determinant theories together.

This follows the general development of thought in risk theory. March, who developed theories on risk perception (March and Shapira, 1987), and taste and rationality (1978) came to this conclusion too (March, 1988). This section looks at and summarises these three integrated theories.

1.2.1 The Reconceptualized model

Sitkin and Pablo (1992) noticed that some theories of risk determination such, as prospect theory (Kahneman and Tversky, 1979), have been contradicted by findings from other studies such as Osborn and Jackson's (1988) and Thaler and Johnson's (1990) research in risk behaviour. The existence of these contradictions and the failure to resolve them is attributed to three concerns with prior research approaches. Firstly, previous researchers have followed single theories, which is considered to be "fragmented and issue oriented" (Sitkin and Pablo, 1992). Secondly, their review of existing research suggests that the risk determinants influence the risk decision process indirectly as mediating influences on risk perception and risk preference. Thirdly, examining the influences in this manner shows where there are contradictions, and shows the relative influence of each determinant on both the perception and preference for risk.

This model tries to unify a number of risk determinants by organising them into two groups; those which influence risk propensity, and those which influence risk perception. The organisation's risk behaviour is influenced by risk propensity, which is a combination of the effects of risk preference, inertia and outcome history. Risk

perception, on the other hand, is a result of single determinants, such as problem framing, top management homogeneity, social influences, the problem domain familiarity and the organisational control systems. The model is illustrated below:

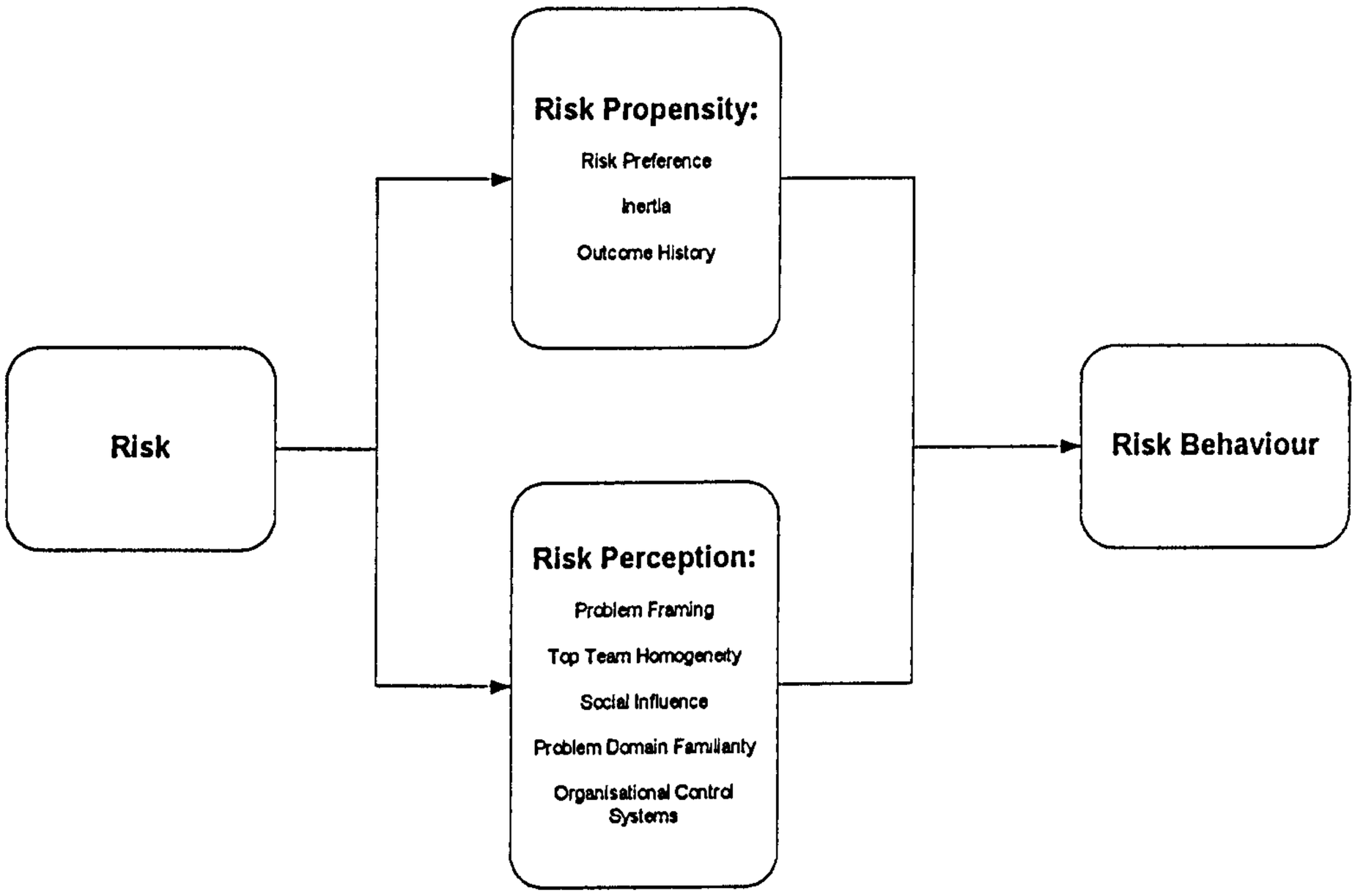

Figure 7 – Reconceptualized model of risk determinants (Sitkin and Pablo, 1992)

In this model the eight determinants are considered in the given decision-making process. From these eight determinants Sitkin and Pablo developed a number of propositions, which are contained in Appendix J.

Based on these propositions a new model has been constructed that juxtaposes the theoretical model with risk behaviour prediction. This is shown in the following table:

		Situational Characteristics (Objective or Perceived)	
		Positive	Negative
Risk Propensity	Risk Averse	Prospect theory – Conservation of prior gains Loss prevention bias	Threat rigidity Hyper-vigilance
		Prediction: Low risk behaviour	Prediction: Low risk behaviour
	Risk Seeking	Attention to opportunities	Prospect theory - Going for broke
		Prediction: High risk behaviour	Prediction: High risk behaviour

Table 3 - Integrated Reconceptualized model (Sitkin and Pablo, 1992)

The Reconceptualized model addresses many of the risk determinants that have been previously discussed. However, it does not directly address the relationship between national and organisational culture. It also fails to integrate the role of large (Kachelmeier and Shehata, 1992) and small (Vlek and Stallen, 1980) risk consequences, or risk acceptance (Allman, 1985). In addition, the model does not consider the temporal aspects addressed by Das and Teng (1997; 2001b), which were proposed after the Reconceptualized model.

1.2.2 Temporal model

A more contemporary attempt to produce a unified model to explain risk behaviour is the risk horizon model (Das and Teng, 2001b). The basic proposition is that the various determinants of risk perception and risk propensity do not fully explain risk

behaviour. They argue that this is because the temporalities of the risk decision are not considered. They consider two aspects to temporality: the risk horizon (short-term or long-term) and the individual's future orientation (near future or distant future). They present their theory as the following model.

Future orientation **Risk propensity and decision context**	**Near-future orientation**	**Distant-future orientation**
Risk averter and positive context	Low-risk behaviour	Low risk behaviour
Risk averter and negative context	High-risk behaviour	Low-risk behaviour
Risk seeker and positive context	Low-risk behaviour	High-risk behaviour
Risk seeker and negative context	High-risk behaviour	High-risk behaviour

Table 4 - Temporal impacts on risk behaviour (Das and Teng, 2001b)

Like Sitkin and Pablo, Das and Teng believe that the question of the determinants has not been satisfactorily resolved so far because of the lack of focus on the role of time in risk behaviour. They argue that risk is embedded in time, and that two aspects of the temporal dimension should be considered. Firstly, risk horizons, the short-range or long-range risk horizon of the risk. Secondly, the individual future orientations of top managers (top team), which can be near-future or distant-future orientations.

They propose a temporal framework of strategic risk behaviour in which the two temporal aspects are integrated with risk propensity and perceived in risk decision making.

1.2.3 Taste and rationality

March is the earliest of the integration theorists. He takes a different approach to integration of the various theories of risk behaviour determinants, starting by examining human rationality. Of course, he was able to cite many examples of the apparent lack of rationality in human behaviour, and use theories to explain these as the basis for his research.

March does not present his model in a format similar to those of others, such as the Temporal model (Das and Teng, 2001b). Instead, he presents an understanding based on integrating the various determinants in terms of rationality and tastes. He addresses the issue of apparent irrational behaviour by considering various types of rationality, including "bounded rationality" (Simon, 1955; Simon, 1956; March, 1978). He looks not just at how we "bound" our rationality with techniques such as "backward" planning from a desired future state, but also at the evidence of organisational behaviour as an extension of individual behaviour (Williamson, 1975). This is important from my perspective because I believe an organisation can take on a "collective" behaviour. This behaviour can thus become a "boundary" to the rationality of those who are part of it. An example of this happened during the merger under study. The chairman of the acquiring back (Bank C) announced at a press conference that the merger would complete five weeks after the US Federal Reserve granted approval. This resulted in planners working back from that date in their planning.

March also presents other rationalities, each of which emphasises a different aspect of individual and group behaviour. These are:

- Limited rationality - the degree to which an individual or group simplifies a decision or problem because of the difficulties of anticipating all alternatives and all information.

- Contextual rationality - the degree to which individual or group choice behaviour changes as a result of the combination of various sources of risk determinants, which form the "context".

- Game rationality - the degree to which individual or group choice behaviour changes in pursuit of personal objectives within the organisation.

- Process rationality - the change in behaviour that results from the decision processes, as opposed to the decision outcome.

- Adaptive rationality – the degree to which judgement changes as a result of the learning process. This is akin to the notion of prior knowledge.

- Selected rationality – the degree to which changes in the choices selected is a result of selection or growth. This is similar to a resource-based model. Certain behaviours bring about successful results while others do not. This can lead to homogeneity of managerial outlook, which was discussed earlier.

- Posterior rationality – the degree to which choices change is discovered through the actions themselves.

March considers it to be the case that decision-making requires a lot of human attention in the processes of information gathering, information processing and decision-making. This decision–making requires a scarce resource of finite capacity. Considering the various factors that drive human personalities, it is necessary to consider the idea of *tastes*. March suggests that taste has a number of properties. Taste is:

- Absolute: Normative theories assume a formal position of moral relativity (March, 1978). Because of this we are uncomfortable with decisions and actions that are contrary to this position.

- Relevant: Decisions should be consistent with preferences when probable outcomes are considered.

- Stable: Tastes should not change.

- Consistent: Tastes should be consistent with each other. Normative theories of choice allow mutual inconsistent choice only so far as they can be made irrelevant by the specification of trade-offs.

- Precise: There should be no ambiguity about the degree to which a particular outcome will satisfy taste.

- Exogenous: Tastes are not affected by the choices they cause to be taken.

March is aware that these propositions are the result of normative theories which are not reflected by our behaviour in everyday life. More importantly, he also finds examples in research that would seem to refute each property.

Nonetheless, he presents an integrated understanding of decision-making with uncertainty. The process of filtering and decision-making may be influenced by the factors of taste and rationality.

Therefore, in order to have a complete understanding of risk behaviour, it is necessary to consider risk both in terms of something that can be quantified, but also something that requires an appreciation that the organisation's reaction to it may be more complex and cognitive than qualitative factors might suggest.

1.3 Other views on organisational behaviour

Even these integrated theories may be incomplete. Before that can be explored, it is important to understand what it is about organisational risk behaviour that requires answers from multiple perspectives.

The answer to this question does not lie in risk management; it lies in organisational research. It is clear that many organisations are large and complex. The complexity of organisations is a key contributor to failure of the merger within these organisations (Reason, 2000; Reason, 2002; Hänninen, 2000). The drivers for organisational complexity include technology and the evolving economic environment. Ultimately, the organisation's behaviour is the result of the behaviour of the individuals within it (Weick and Roberts, 1993).

It is quite easy to think of an organisation as a network where each person is a nodal point, all of which are interconnected via formal and informal links, which may be either direct or indirect. The way each node behaves is influenced by how the organisation as a whole behaves, in conjunction with the desires of the individual. This is essentially how Weick and Roberts (1993) describe the way aircraft carriers operate. They are not unique in viewing organisations in this way, as Hogg and Terry (2000:121) describe organisations as:

> *"Internally structured groups that are located in complex (organisational) network of inter-group relations characterised by power, status and prestige differentials."*

They take this view further by asserting that the need for social identity is met by being part of an organisation, and that the need is so strong that it is central to the person's own self-image. It actually reduces uncertainty about their place in the world. This means that just as the organisation's behaviour is altered by the individual's behaviour, so the individual's behaviour is altered by being part of the organisation.

In response to the complexity of organisations we need to produce models of behaviour in order to explain it. Single determinant theories of risk behaviour, while valuable, are not sufficient to offer a workable understanding.

> *"Organizational researchers in the late 20th century face a variety of paradigms with which to theorize their subject matter. ...(Paradigm) interplay complements well known contrasts between paradigms with connections proposed by post-modern critiques of modernist social science. Considered simultaneously, these contrasts and connections position the researcher to move back and forth between paradigms and invite researchers to see and use the diversity of organization theory in new ways"*
>
> (Schultz and Hatch, 1996:529).

Schultz and Hatch argue the need to use all of the "paradigm diversity map" (Burrell and Morgan, 1979) in research. This approach has only attracted significant research focus in the last ten to fifteen years (Hogg and Terry, 2000), both in the fields of multiple paradigms (Schultz and Hatch, 1996), complexity (LaPorte, 1975b; Tsoukas and Hatch, 2001) and searching for new forms of description (Hatch, 1998; Hatch, 1999; Hatch and Weick, 1998; Weick, 1998). This has also taken place in the area of risk behaviour. There is a weakness in trying to express the complexity of risk behaviour with a single determinant. This is implicit in some research (March, 1988; Pablo et al., 1996), but is explicitly addressed by others (Sitkin and Pablo, 1992; Das and Teng, 2001b).

The review of literature focuses upon risk and risk behaviour. It is useful to look beyond his to find other possible explanations for what is being observed. There are two other areas I wish to focus on. The first of these is decision-making. It is suggested that risk perception plays a more dominant role than risk propensity, and that of these, outcome history is the most significant determinant (Sitkin and Weingart, 1995). Sitkin and Weingart put forward the concept of "domain career", which is a type of measure of how familiar one is with the given domain. Arguing that an

individual's risk propensity for the domain is set in early experiences of the domain, they find that it may become fixed over time. This is important because in this research we will see the organisation move outside its familiar domain. In this situation the organisation is familiar with the risks, and so its propensity is already set. In other areas it is not familiar, and so the propensity is not fixed. This would explain inconsistent risk propensity observed from both the individual and the organisation. Another factor is the role of conflict and politics in decision-making. A merger or acquisition is full of opportunities for conflict, many of which have been identified by practitioner and academic research (Pablo et al., 1996; Pritchett, Robinson, and Clarkson, 1997; Galpin and Herndon, 1999; Carter, 1999; Chevriere, 1999; Miller, 1999; Habeck et al., 2000; Tuesday, 2003; Robb, 2003; Cuneo, 2003). Politics can play a part in causing these, as well as being a tool to prevent and disarm conflicts (Sitkin and Bies, 1993). The organisations involved in this acquisition are very resource rich, in terms of financial strength, capability and human resources. This is important in crisis situations, allowing the organisation adapt and create solutions to risk as required (Weick, 1988; LaPorte, 1975a).

The final factor is culture. We have already examined the role of national culture (Douglas and Wildavsky, 1982) and organisational culture (Hatch, 1997). In separate research, Hatch and Schultz (1997) and Sims (2002) shows that culture, identity and corporate image are both intertwined and interdependent. Therefore, the image that the organisation projects is contextualised to suit its needs, while its culture can be different. In addition to this, the need for self-identity is influenced by the total culture, as well as by the individuals within it (Hogg and Terry, 2000).

2 Conclusion

The age of some of the references makes it clear that risk has been a cause for consideration and concern for some time. It is clear that there are many definitions of risk and its properties. Obviously this presents a potential difficulty if like for like comparisons cannot be made. The basic descriptive elements in the engineering-based literature is broadly similar in terms of the risk properties (probability, impact, hazard) and term t differ in terms of the precise scope, illustrated by the various definitions offered by Vleck and Karen (1991), who found ten different definitions.

The engineering view presents a model of risk behaviour that is rational and quantifiable. The elements of the risk can be mathematically manipulated, which is probably why the terminology of risk and probability is used by cognitive researchers. In application it is very difficult to measure the values of probability and impact for all risks, and cognitive research has shown that risk perception and propensity also play a crucial role.

To address the need to understand the roles of perception and preference, a series of cognitive theories have been developed which propose, and in most cases test, the role of single determinants of risk behaviour. These determinants have been shown to play a role in risk behaviour. Some are predictive, and have a consistent impact on risk behaviour (either to increase or decrease the likelihood of risk behaviour), whilst others, such as outcome history, can impact risk behaviour in a contradictory manner, which can increase or decrease the risk behaviour. These theories have also tended to examine decision-making at the individual level. Contemporary research such as March (1988), Sitkin and Pablo (1992) and Das and Teng (2001b) have put forward models of risk behaviour which attempt to address some of these shortcoming, all look

at multiple determinants and their interrelated ability to modify risk behaviour and examine the role of risk behaviour in an organisational context, rather than at the individual decision-maker level.

CHAPTER 3: CONTRIBUTION, DISCUSSION AND CONCLUSIONS

This chapter has five purposes; the first of these is to provide a linkage between the three projects, pulling them together to facilitate a comprehensive discussion of the research, from which conclusions can be drawn. The second is to identify areas of weakness in the research, and opportunities for further research. The third is to demonstrate where there are contributions to knowledge arising from this research. These contributions are in the areas of theoretical, empirical, methodological and practical knowledge. The fourth purpose is to present my own observations, both on the research and the research process that I, as a management practitioner, have gone through. The fifth and final purpose is to present a discussion of the impacts of this research.

1 Contribution

This section highlights the contributions made by this research. These are summarised in Table 5 - Matrix of contributions, below. The contributions are made under four headings. These are contribution to theoretical knowledge, empirical evidence, methodological approaches and management practice.

In total eighteen contributions are made by this research. Five are in the area of theoretical knowledge, four of the contributions are to empirical evidence, four to methodological approaches and five to practice of knowledge.

Domains of contribution	Extent of contribution		
	What has been confirmed?	What has been developed?	What has been found which is brand new?
Theoretical knowledge	• There is a need for a multi-paradigm approach to understanding organisational risk • Where existing management controls can manage a risk, the risk will tend to receive high management attention; and • Where there is a successful outcome history of managing the risk it will tend to receive high management attention.	• Temporal theories do not appear to satisfactorily explain what is observed when the organisation moves outside its operational domain; and • Support for the merger model.	
Empirical evidence	• Where there is a successful outcome history, or the risk can be managed using normal management controls, the risk it will be managed well.	• The data contradicts the Temporal model's (Das and Teng, 2001b) expectation.	• This is the first study to examine this phenomenon.
Methodological approaches	• Use of the Delphi method • Use of the case method; and • Value of multi-paradigm approach.	• The use of the Delphi method as a post-facto investigative tool, combined with the risk scoring.	
Knowledge of practice	• The organisation does not necessarily operate in a rational manner, and • Technology is a key source of risk in the acquisition.	• Risks with a successful outcome history will tend to be managed in an excessive manner; and • Risks which can be managed using existing organisational, and possible regulatory, controls will tend to be managed in an excessive manner.	• The research presents a new Delphi-based risk identification and measurement tool for managers.

Table 5 - Matrix of contributions

1.1 Contribution to theoretical knowledge

The research makes five contributions to theoretical knowledge, as indicated in the table above, Table 5 - Matrix of contributions.

The first contribution is the merger model, which is a chronological description of the merger process between two investment banks. This model is based on the integration plans for the acquisition under study, and the earlier acquisition of Bank A. They extend and enhance similar descriptive models (Habeck et al., 2000; Pritchett et al., 1997).

The second contribution of the research relates to the determination of risk behaviour played by successful outcome history. The research shows that when the organisation is operating outside its normal operation domain its behaviour towards risks it is familiar with, and has a successful outcome history of managing, is to manage the risks particularly well. This partly supports the findings of Thaler and Johnson (1990), that the degree of success or otherwise of managing the risk in the past can encourage or discourage risk-taking behaviour. In this case the organisation is clearly focusing strongly on managing these risks well, which constitutes risk-averse behaviour. The findings are contrary to what was found by Tversky and Kahneman's (1973) research on availability theory, which suggested that because of the familiarity, the decision-maker would be less risk-averse.

The third contribution demonstrates that under these conditions, the organisation will well manage the risks which can be managed using ordinary controls. The application of controls can reduce the risk probability being faced (Flint, 1981), even if it cannot eliminate them (Perrow, 1983; Perrow, 1984). A number of researchers have explained

the desire to apply normal controls in unfamiliar circumstances (LaPorte, 1975a; Weick, 1987; Weick, 1977). This is often the "sensible" choice for the decision-maker as it is generally rewarded (Ouchi, 1977) and might be the first solution to present itself (Tversky and Kahneman, 1973). However, once the organisation is outside its normal domain, this behaviour is only good to a point, and high reliability in organisations requires decision makers to be able to abandon normal controls and either use different controls (LaPorte, 1988) or create new behaviours (Weick, 1993) to manage the being faced.

The fourth contribution relates to the way in which the future orientation of the organisation influences risk decision-making (Das and Teng, 2001b). The expected risk behaviour that would be predicted by the Temporal model (Das and Teng, 2001b) only occurred in one of the four case studies conducted in Project 2. This challenges the Temporal model; it is not to say the Temporal model is incorrect, however, it does indicate that it is not applicable in this circumstance, and therefore it is not universally applicable.

The final contribution supports the general view of risk behaviour proposed by March (1988; 1992) that to understand risk behaviour in organisations you need to consider multiple risk determinants. This "multiple-paradigm" (Schultz and Hatch, 1996:529) approach to organisational research is necessary. The case studies in Project 2 illustrate how a number of risk determinants could explain an aspect of the risk behaviour observed. No single determinant theory could fully explain the risk behaviour observed for any single risk, let alone the four studied in the cases.

1.2 Contribution to empirical knowledge

The research makes three important contributions to empirical knowledge.

Firstly, the data collected supports a number of existing theories (outcome history, organisational controls and availability theory) which explain risk behaviour. This is discussed in the preceding section and so will not be repeated here.

Secondly, the evidence from the cases shows that in three of the four cases the behaviour that would be expected, according to the Temporal model (Das and Teng, 2001b), did not in fact occur. This evidence is therefore contradictory to the experimental evidence found by Das and Teng (2001b). This is very different data from that used to support the Temporal model. There are two key differences. The first is that is this is drawn from practitioners working on real business problems, while Das and Teng use experimental data under a controlled setting. The second is that this relates to a specific and unusual event with compact timelines, which probably impacts on decision-making and the organisation's future orientation.

Thirdly, this research also presents new empirical evidence. The data collected in the first project appears to be the only research data collected in relation to the change of control period in an investment bank acquisition. While there has been prior research into mergers (Meeks, 1977; Herzel and Shepro, 1990; Limmack, 1991; Pablo et al., 1996; Donnelly, 1998; Johnson, 1999), they do not examine the CoC. A possible reason for this is that regulated financial acquisitions are relatively rare; there were 338 (4% of all M&A activity) banking and finance mergers and acquisitions in the first ten months of 2003 (Mergerstat, 2003a). Only a percentage of these would be banks that

would be subject to the type of regulation that would make the CoC such a complex event. This is the only data that examines this phenomenon.

1.3 Contribution to methodological knowledge

The research makes four methodological contributions. Three confirm existing, but not necessary common approaches, and one develops current methods.

The first two of these contributions relate to using the Delphi and case methods. The use of the Delphi method is not very common in academic research (Fourlis, 1976). There are probably two reasons for this; the first is that the method is usually used for forecasting purposes (Fourlis, 1976; Jenkins and Thoele, 1991; Helmer, 1968; Dalkey, 1969), and the second is that as it is not frequently used, it may not be well understood, and therefore may seem to lack the necessary rigour of research (Jenkins and Thoele, 1991; Fourlis, 1976). By using the method I am re-confirming the ability of the Delphi method to be used in research.

It is much the same with the use of the case method. It is not frequently used in research for a number of reasons, and this can undermine its perceived rigour (Yin, 1994). Three areas for concern exist; the potential for lack of rigour on the part of the researcher, the limited opportunity for generalisation, and the fact that case studies can be very time consuming. Each of these can be overcome (Yin, 1994), and this is described in detail in Project 2. By using it, I hope to further the acceptance of the method.

The two methodological contributions are that the research is multi-paradigm based and it applies the Delphi method is a new way.

This research draws on many paradigms to explain risk behaviour. At the highest level it uses the Reconceptualised model (Sitkin and Pablo, 1992) and the Temporal model (Das and Teng, 2001b). In addition to these, it also examines the eight risk paradigms that underpin these models. This type of multi-paradigm method is rare in organisational research (Burrell and Morgan, 1979; Schultz and Hatch, 1996), though clearly researchers are seeing an increasing need for this type of research (Weick, 1995; Hatch and Weick, 1998).

The final contribution is the use of the Delphi method for the retrospective analysis of an event instead of for forecasting. This is a completely new departure. The use of Delphi in a post-facto manner is not a usual approach, as Delphi is usually used for pre-facto work. This type of post-facto use, combined with the development of the scoring mechanism, allows its results to be presented and interpreted in a way that makes it easier for the data to be understood and interpreted.

1.4 Contribution to practical knowledge

This research makes five contributions to management practice.

Firstly, the findings in Project 1 re-confirm the fact that organisations do not necessarily operate in a rational manner. The inverse correlation between the level of risk significance and the level of mitigation is evidence of this. This shows that it is not sufficient to assume that managers will act in accordance with what they believe to be right. Considering the strong adherence to management controls, this may be seen in the adherence to rules in practice (Weick, 1983).

The second contribution is the proposal that technology is a key source of risk. This is understandable in investment banks, as they are information-intensive enterprises (Porter, 1985) and invest heavily in technology. For example, in 2002 Merrill Lynch spent US$1.75 billion (14.8% of expenses) on technology and telecommunications (Merrill Lynch, 2003:15). It is further confirmed by this research, which shows that technology risks account for about 65% of all risks identified. Risks which cannot be quantified are less likely to be managed well. This is shown in this research by examining the management of human factors risks, which are hard to quantify compared with risks relating to financial controls. This has been a concern for this industry for some time and has in recent years been the subject of consultations papers on future operations risk management (FSA, 2000a; FSA, 2000b).

The third contribution comes from other pieces of data that progress management practice. The first is that Project 1 demonstrates how risks with which the organisation has a high degree of familiarity will be managed better than those with which it is not familiar. This is probably a development for management practice as risk management in this organisation is based around prioritisation of risk based on likely impact and probability [DOC05C].

Risk characteristics of the dominant national culture can become the risk behaviour of the organisation. This can be seen in the second project. The tendency to need formal controls within the dominant national culture (Hofstede, 1980) could be exerting more influence than the organisation realises.

The fourth contribution is that, once the organisation moves outside its normal operational domain, it applies its organisational controls in risk management in an excessive manner. This is inefficient, but also means that other risks are not receiving

management attention, which is a risky strategy in itself (Reason, 2000; Weick and Roberts, 1993; Hudson et al., 1994; Reason et al., 2001; Reason, 2002).

The final contribution comes from the use of the Delphi method for risk analysis, in conjunction with the risk measurement and scoring system, is a new tool to aid management practice. It is important because it can hold up a mirror to the organisation that applies it. It is also important because it provides a method that is relatively inexpensive, quick to apply, and is free of many of the issues of group dynamics that similar methods can suffer from.

The other new finding is the insight into the behaviour of a large organisation when operating outside its operational domain. It has shown that the regulatory and organisational controls will be adhered to very strictly, though this was probably not the intent. This is important for the industry's regulation.

2 Discussion

The discussion of this research is undertaken from two different perspectives; the academic findings and impact, and the practitioner perspective. The research makes several important findings and raises several important questions. The practitioner discussion considers three levels; management practice in general, industry regulation, and the target organisation itself.

The phenomenon under study in this research is one that has not been examined before. This type of M&A activity, a trading investment bank, is a rare event, particularly among banks of this scale. Among such large and complex investment banks there have been typically only a handful every year. It is an expensive and risk-

intensive undertaking bounded by tight time constraints of the change of control week-end (typically from the close of business on a Friday until the opening of business on the following Monday). In spite of this it has attracted no academic research prior to this study. No articles relating to this specific undertaking have been found. This surprises me from an academic standpoint, but my experience of working with some of the largest organisations in this industry suggests that they would not like to draw attention to the process in detail, partly because of fears relating to confidentiality, and partly because they would not like the scrutiny that such study would necessitate. Having undertaken this research, I hope that other researchers will now consider this area for further investigation.

The complexity of organisational risk behaviour is very clear from this research. Single determinant theories are all insufficient to explain the processes at work. Even integrated theories are either incomplete (Sitkin and Pablo (1992) do not consider temporal aspects) or inaccurate (Das and Teng's (2001b) model failed to predict the actual outcome in three out of four instances). So we clearly have a long way still to go. I would make two suggestions based on these observations. The first is that risk behaviour is highly contextual. By this I mean that all the determinants are at play, but the relative importance of each may vary depending on the situation. Recent research into large economic losses and gains (Kachelmeier and Shehata, 1992) suggests that large losses or gains can change our propensity for risk. Yet we are also aware that people are capable of risking, and even sacrificing their own lives for no economic reward to save others under some circumstances. It is clear to me that in under some conditions the importance of the determinant will change. What is needed is the

development of an explanatory model which can account for and explain these shifting prioritisations.

The second suggestion relates to temporal considerations. Das and Teng (2001b) considered temporality as a factor that moderates the risk behaviour post the impact of risk perception and risk propensity. There is no reason to suspect that temporal considerations are any different from other risk determinants, save one. Time considerations can operate on a risk preference level between national cultural groups (Tromperaars, 1993), and therefore also at the individual decision-maker level. However, risk perception can also be affected by time considerations (Das and Teng, 1997), such as the amount of time before the impact of the risk is experienced in comparison to the potential reward.

The research has identified the risks faced by a major investment bank while executing a proprietary acquisition, specifically the change of control. This is not been undertaken before. While this type of acquisition is relatively rare, it is very important, and the lack of prior research indicates a gulf between management practice and academic knowledge that needs to be bridged.

The research does not necessarily contradict any previous theories of risk determination based on single risk determinants. It does support Ouchi's (1977) findings on the importance of organisational controls in influencing behaviour. It also supports the opinion of Weick (1996b; 1996c) that when placed outside the operational domain, many teams will adhere strictly to their training and will not be able to improvise, should that be necessary. Of course, once outside the normal operational domain the ability to improvise is crucial, whether it be a life and death

situation (Weick, 1993) or responding to change (Hatch, 1998) or ambiguity (Hatch, 1997).

In this research we will see how the risk behaviour observed is influenced by many risk determinants, particularly the outcome history (Thaler and Johnson, 1990) and the controls (Ouchi, 1977) that are in place. There is also a strong suggestion that the nature of the dominant national culture has played an important role, reflecting earlier research by Hofstede (1980), Tromperaars (1993) and Douglas and Wildavsky (1982). The importance of national culture in terms of the closeness of the match of cultures was found to be important in the similar activity of strategic alliances, by Das and Teng (2001a). This suggestion may be the result of the dominant culture or the cultural similarity of the top team, resulting in "groupthink" (Janis, 1972) behaviour.

It is clear that no single risk determinant explains the observed risk behaviour. The need for more complex multiple perspective approaches has been argued by a number of researchers (Burrell and Morgan, 1979; Schultz and Hatch, 1996; Weick, 1996a). Those who have produced models for risk behaviour, such as March and Shapira (1987), have done so in order to overcome the limits of single perspectives. The integrated models provide an opportunity to better explain the complexity of what is happening within the organisation. However, even these models are found to be lacking. The findings in Project 2 contradict the expected behaviour predicted by the Temporal model (Das and Teng, 2001b). Of course, because this is a rare event, the conditions are unusual; nonetheless, the research shows that there is a need for a newer and more robust theory.

This research examines how one company behaves when it operates in an unfamiliar problem domain. This is different from operating in a familiar problem domain. The

new operational domain will present many problems. Some of these are familiar to the organisation, some are not. During a time of strong economic performance of the global economy, many companies engaged in acquisitions and mergers, which places them into an unfamiliar problem domain. In more recent times, the economy has deteriorated and organisations are faced with new and unfamiliar challenges. Some of these are economic changes, while others are of a geo-political nature.

The long-term survival and performance is, of course, crucial to the shareholders in the organisation and many of its other stakeholders. Failure to manage long term risk in financial products has led the Britain's longest established mutual society, Equitable Life, to close its doors to new business. Yet its policyholders (who are in effect its shareholders) expected long term security from the firm. It is implicit in the expectation that long term risk be managed that short term risk should also be managed; after all, without short term risk management there may not be a long term for the organisation. There is growing evidence that pressures for reliability from corporate organisations are greater than at any point in recent years (Stabile, 2002), combined with significant new sources of risk combine to present new challenges for corporations.

In responding to these challenges, my research indicates that organisations will focus on issues that are addressed by specific formal controls. This is important because the regulation in place shapes the controls, though it may not be designed to address the unusual problem domain. Regulators need to be aware of this. The message to regulators is that they need to consider extraordinary situations in framing their regulations.

1. Day-to-day business controls will be applied in abnormal situations

2. Risks not normally managed successfully will be managed negligently; and

3. Where there is an existing management control the organisation will tend to be overly manage the risk.

The findings can be generalised to areas of unfamiliar operational domains, at least within this industry. The operation of the organisation outside the normal operating environment is, by definition, unusual for the organisation. However, while it is unusual for the organisation, the events appear to be happening with increasing frequency. Looking at a macro level, in the 1970s organisations had to deal with two main asymmetric shocks; the two oil crisis. In the 1990s, in addition to the instability caused by the first Gulf war, organisations had to respond to a series of debt default crises (South America, South-East Asia and Russia), but also to the Euro conversion and the Year 2000 problem. In this century we have seen a rise in the need to respond to terrorism, which places new challenges on large organisations. This research provides a rudimentary tool to allow the enterprise to quickly identify and measure the risks faced in these unusual circumstances. The research also shows that organisations should not depend on existing controls and staff to protect their commercial interests. New techniques are required in order to give organisations higher operational reliability by being able to respond creatively and with improvisation to these challenges through heedful interrelations (Weick and Roberts, 1993; Roberts, 1990) and creative sense-making (Weick, 1988; Weick, 1998). Otherwise, organisations' performance will suffer and the organisations may fail in their entirety.

These findings are significant for management practice. If an organisation wishes to ensure that it is successful when placed outside its normal operating domain, it needs to appreciate that normal managerial controls and approaches will generally be applied.

Faced with this, practitioners need to make one of three responses, or a combination of those three.

Firstly, the organisation needs to strengthen its normal day-to-day control and decision making process to ensure that it is robust enough and broad enough to address the risks it will face in an unfamiliar problem domain.

Secondly, the organisation can ensure that its decision-makers are trained to be aware of the different approaches and decision requirements they might face and guarantee that they are empowered and feel empowered to create solutions and make sure that there is not a collapse in sense-making (Weick, 1993) in the face of an unfamiliar problem domain.

Thirdly, the organisation can consider creating separate controls and control mechanisms to manage ad hoc situations as they occur. Like the control centre for the acquisition under study, the organisation can develop the capability to rapidly respond to new situations by bringing together (physically or virtually) the necessary resources and expertise, and allow them to take control of the organisation during the period of exposure to the unfamiliar problem domain.

The methods used in Project 1 and Project 2 are not commonly used. Case studies are rare (Yin, 1994) and I have never seen a post-facto use of the Delphi technique described in any of the reviewed literature relating to Delphi, whether it be from its original creators (Dalkey, 1969; Helmer, 1968), academics reviewing it (Fourlis, 1976; Hiltz and Turoff, 2001; Linstone and Turoff, 1975; Jenkins and Thoele, 1991; Mandanis, 1968), or from those using it in practice (Flynn and Belzowski, 1999).

However, the findings have been comprehensive and have avoided many of the issues relating to group dynamics which have been discussed in the literature section.

While it does answer what it set out to answer at the start, the research also leaves a number of important questions unanswered. These questions prompt further querying into this area. It is easy to perceive organisations as rational structures composed of people who act in a broadly rational manner. However, failings within the organisation, such as politics, expertise, resource limitations (Teng and Cummmings, 2002), along with other factors, cause the organisation to act in a manner that is not aligned to its own self interests at all times, which we have observed. From this perspective, organisations may act irrationally, at least when they are, as seen in this situation, operating outside the usual operational domain.

This in itself is not surprising to me. As a practitioner, I frequently see situations where the organisation acts in a manner that is not in its overall best interest. This is usually the result of members of the organisation taking action which is in some way optimal to them, but not to the organisation as a whole. What made this very interesting, and a little disturbing, is that the members of the organisation knew that there were other important risks that it was not addressing, but as a group they either accepted or ignored this (Janis, 1972).

For a listed organisation this is very serious. The directors and managers of a listed company have a duty of care to protect the interests of the shareholders. For the organisation to knowingly act in a manner that does not look after the shareholders' interests is a serious concern.

The risk behaviour is influenced by many risk determinants, in particular the outcome history and the controls that are in place. Other risk determinants can play a role too, and these need to be investigated further. In addition, the understanding of the importance of future orientation, and how it relates to risk preference and perception, does not appear to hold true in this situation. This should also be investigated.

With this understanding, and with a tool which allows an organisation to see its collective understanding of the risks, it is possible to address not only the particular risks to which it is exposed, but also those determinants of behaviour which need to be addressed. This means that more focused, and therefore more efficient, efforts can be applied to the issue.

The basic technique used in this research has been applied in three different organisations and is being considered by a number of others. From a practitioner perspective it offers a number of advantages over other methods:

- It tends to give back more complete coverage in terms of risk identification
- It avoids group think
- It can help to build up a degree of consensus which reduces the resistance to and difficulties of instigating the change necessary to respond to the risk because the group agrees on the prioritisation.
- It can be implemented very quickly and can offer initial results in a short period of time
- There is little impact on the organisation; and

- The cost is relatively low.

The Delphi-based technique used in Project 1 is a very useful implementation of the Delphi Method. By conducting the research in this manner it was possible to gather the information without the interference of group dynamics. It also makes it possible to engage a wider range of individuals, and to combine all of their individual inputs.

In studying the acquisition of Bank B by Bank C, the research set out to discover what risks the organisations faced during the acquisition, and in particular, during the change of control phase. In identifying the risks faced, the research also identified the significance and level of mitigation of the risks. This showed an inverse relationship between the two. Many of the most significant risks are not well managed, while the lesser ones were excessively managed. The next goal of this research is to find what possible explanation for this may lie in the clusters of excessive and negligently managed risks.

There are two clusters among the excessively managed risks. These are the control centre itself, and clarity around trading and settlement positions. The latter cluster represents risks which can be managed using day-to-day controls and which are largely a "mechanical" activity. At the other end of the scale are the negligently managed risks. Most of these are human-centric in nature, and are poorly mitigated. This indicates that the organisation has a propensity to manage non-human issues well. This may reflect a tacit decision by the organisation to be less concerned with taking risks with human capital, or it may be a reflection of the high power distance of the dominant national culture (Hofstede, 1980). Of course, in an acquisition situation, these risks come to the fore.

The potential exists for a series of risks to combine and result in a risk coming to pass for which the organisation is simply not prepared. This is similar to what has been described as a "Swiss cheese" effect (Reason, 2000). This is when various weaknesses in the protection levels align and allow a threat to penetrate the defences, much like aligning the holes in slices of Swiss cheese. Naturally, this sort of scenario is a substantial concern for an investment bank. The source of this organisational weakness requires further investigation. This will be the focus for my future projects.

Because this is a regulated industry, organisations are obliged to incorporate the regulation into their operating procedures. This means that the regulator indirectly determines part of the organisation's control mechanisms. Since the research finds that these are likely to be followed closely in the unfamiliar as well as the familiar problem domain, the regulator needs to consider the impact of the regulations on the whole industry.

Regulators need to consider this and regulate in a way that reflects this situation, either through making robust regulations or through allowing organisations latitude in the application of the regulations in the face of exceptional situations.

The research has a significant potential impact for how the target bank manages not just its acquisitions, but potentially all risks in general. If later research allows the findings to be generalised beyond the target organisation, it could have a major impact for investment banks and similar financial institutions.

3 Conclusion

The research looks at risk behaviour in an important area of banking activity which has not so far been researched. The research has successfully identified the risks, their relative importance and mitigation, and the behavioural determinants which determine the risk behaviour. With this knowledge and techniques, organisations can repeat this process and identify the risks that need addressing and the behavioural changes necessary to improve the overall risk behaviour of the organisation.

PART B: PROJECT REPORTS

REPORT: PROJECT ONE

This chapter addresses the research conducted in Project 1. This project is concerned with identifying the risks that the target organisation (Bank C) faced during its acquisition of Bank B, how significant they were, and how well mitigated they were. This chapter is divided into three parts and is based on the literature reviewed in Chapter 2. The first part of the chapter describes the research method followed, why it was selected, and how it was conducted. There is a particular focus on the Delphi method, which was adapted for this research. The second part of the chapter presents the results of the project. The third and final part is a discussion. This discusses the findings and poses the research questions which the follow-on project, Project 2, addresses.

1 Method

This section describes the method of research undertaken in Project 1. It discusses the methods which were considered, and why some were selected over others. In particular, the use of the Delphi method as adapted for this research is discussed in some detail, as is the method of review of company documentation that was available to me.

The objective of the project is to identify risks and quantify their significance (probability and impact) and their mitigation. Because of this a method would be needed that would answer these questions in a quantitative manner. It is also necessary to be able to analyse the risks in terms of their timing, and the nature of the risks,

which as a practitioner I believe to be an important aspect of the management processes, given the compressed time frame involved. Also discussed are the selected method of research with the two sources of data available to me; company records and a small pool of professionals.

1.1 Initial approaches considered for the research

Considering the data sources, time and objectives of the research, appropriate methods that could be considered for the research needed to be found. To aid this I reviewed *Doing Quantitative Research in the Social Sciences* (Black, 1999) and *Qualitative Data Analysis* (Miles and Huberman, 1994) to inform and to provide an overview of the options that one should consider. Black (1999) proposes a process for hypothesis which is not appropriate for this project; however he does outline approaches to data gathering which can be used. It became clear that the selected method needed to be appropriate for post-facto investigation. Three broad approaches were identified.

The first approach was to review the company records and identify the risk to the merger's success documented in the company's records. This could then be followed by producing a questionnaire which could be used to poll the panel of experts. This approach could be operationalised, provided that there was a way to manage the volume of data in the company records. However, I was uncomfortable with it because I would not be gathering data from the experts and so I might miss the benefit of their experience. It is also entirely possible that a questionnaire would not be interpreted in the same way by all respondents. There is also no real scope for follow-up with this approach. Because of these concerns I discounted this approach.

The second approach to be considered would be to interview the experts. Then, based on a content or similar analysis, extract the risks identified and produce a questionnaire which the panel could complete. This offered a lot of benefits because it would base the work on the experts' opinion and so include their input. They would be able to incorporate whatever they wished, and as it is based on the interview; I could structure it to bring greater focus on the change of control part of the merger. In spite of the advantages of this approach, there were also concerns. There could be ambiguity in the results returned by the experts, and in addition, there could be disagreement over the answers, and there would have been no opportunity to address these.

A third consideration was to organise a workshop or focus group session with the experts. This offered the possibility of the experts getting into a detailed discussion and debate relating to the central issues. This offered a lot of scope to arrive at an agreement and to elicit greater depth in relation to understanding the issues. On the other hand, such a focus group would be very difficult to chair as there were many senior people involved. I could not be sure that I would be able to manage and direct it appropriately so as to cover all the issues in a reasonable time frame. In addition, finding a time and venue agreeable to all of the parties was not practical because some were in locations overseas. Also, it was quite possible that the group could be dominated by a small number of individuals, which is a common problem with group discussions (Fourlis, 1976; Jenkins and Thoele, 1991).

The second option, while attractive from an operational and data quality perspective, still suffered from the possibility of there being disagreement on the importance of one given risk versus another, which would make it difficult to achieve management commitment to address the risks from within the organisation. The solution to this

was to modify the basic approach so as to incorporate the approach used in the Delphi forecasting method. This would allow the respondents to answer the question more than once, and thus modify their answers once they became aware of the answers of the others in their group.

The use of the Delphi method is not very widespread in academic research (Fourlis, 1976), partly because it is usually used as a forecasting tool (Helmer, 1968; Dalkey, 1969), and partly because many academics are not comfortable with it as a rigorous research tool (Fourlis, 1976; Jenkins and Thoele, 1991). These concerns need to be addressed.

1.2 The Delphi method

The Delphi method was developed as a group consensus technique to produce forecasts for a particular topic or area of interest (Hiltz and Turoff, 2001). It was developed by Olaf Helmer and Norman Dalkey at the Rand Corporation (Helmer, 1968; Dalkey, 1969).

The use of the method has grown substantially in terms of frequency of use and purpose for which it is applied. Today, it is applied to a wide range of forecasting activities in many industries (Jenkins and Thoele, 1991). It has been found to be more appropriate than numerical forecasting methods in many circumstances (Fourlis, 1976). Fourlis found that successful use of the Delphi method depends upon:

- Anonymity of the members of the panel – the panel would be unaware of the identity of any other panellist, so as not to influence their opinion.

- Controlled feedback – the panel make their estimates (give their opinion) in a uniform way.

- Statistical group response – the opinions are weighted in some manner. This would depend on the topic, such as favouring the views of recognised specialists, or those with long experience.

One attribute that is often considered beneficial by contemporary writers is the fact that it is asynchronous. Some consider this to be a prerequisite (Hiltz and Turoff, 2001), partly because of the use of mail to co-ordinate and correspond with the members of the panel. Today, we can use technologies to support us to work in a more iterative fashion if so desired. When Helmer was describing the Delphi method in the late 1960s, he made no specific reference to this. He described the process as a series of sequential steps.

The Delphi method can be applied to activities other than forecasting. Some consider and use the Delphi method as a "decision support" tool (Hiltz and Turoff, 2001), though there is no indication that this was Helmer's original intention. I elected to use the Delphi method because of the consensus-building nature of the method. Using it allowed me to extract and gain a degree of consensus about the risks, their significance and mitigation, which the organisation believes that it faces during the acquisition.

Another advantage of the Delphi method is that it can lead to higher quality of decision-making. In the late 1960s research into the issue of the quality of decision-making was conducted within the Rand Corporation (Dalkey, 1969). Dalkey expressed the opinion that the lack of a "face-to-face" procedure and the anonymity of the

Delphi method results in a better quality of decision-making, thus resulting in a better consensus.

Jenkins and Thoele (1991) point out the potential high quality of group decision-making. In support of the accuracy of group forecasting compared to that of individuals, they quote the findings of Sniezek (Health & Safety Executive, 1989). Jenkins and Thoele also point out that sometimes a group of experts was not significantly better at forecasting than the general public. They cite an example from Wright and Schaal (1988) relating to the quality of decision-making, in terms of the selection of high performing equities between the general public and experts.

The process also allowed for better learning. By going through multiple iterations of the opinions of various stakeholders, it was possible for each to gain an appreciation and understanding of the knowledge, issues and perspective of the others. Mandanis (1968:17) found that "the Delphi method can take the form of a detailed understanding by corporate executives of the reasoning that underlies their respective staff's recommendations, or it can help the latter appreciate more intimately, the biases and style of those they counsel".

One of the dangers of group decision-making is the impact of a dominant individual (Jenkins and Thoele, 1991). The anonymity of the Delphi method avoids contact between participants, thus greatly reducing the impact of dominant individual behaviour. There is no threat of a single individual "setting the direction" or intimidating others and preventing them from taking part, as there is no group interaction.

1.2.1 Other concerns

A number of researchers have identified weaknesses with the Delphi method. Fourlis (1976) identifies and addresses a number these.

- Panel selection - the members of the panel need to be deemed to be "experts". Those selected for the panel are all experts in that they have either considerable professional or academic expertise of the subject area. Of course, some experts can have a greater degree of expertise on some aspects of the issue than others. It is possible to allow participants to assign a self-weight to the questions if necessary.

- Group size - like any sampling method, the error decreases as the sample size increases. Group sizes of 13 to 15 are optimal (Dalkey, 1969). This is possibly a reflection of the technology used at the time. Today, using interactive technologies, it is possible to have any number of experts take part. No research has been undertaken to determine whether or not this is the case.

- The questionnaire - the questionnaire needs to be clear to the respondent, in that they must be clear as to the questions being asked of them. Because of this, it may be necessary to provide the participants with extra background knowledge.

- Reliability of the technique - the conclusion that Fourlis (1976) comes to, and quotes a number of sources to support him, is that the method is reliable when used in the right context. The sort of economic and academic value placed on the findings of Delphi studies by commercial organisations also supports this. An example is the recent Delphi-X study (Flynn and Belzowski, 1999) which

examines trends within the petroleum industry. He also concludes that there are a number of potential issues relating to the respondents' interpretation of the questions that in turn bring into question the researcher's ability to compare answers. There are also issues that surround other group techniques, such as polling. Therefore, we should conclude that the issue relates to the application of the technique, rather than to the technique itself.

The method of qualitative data collection selected was adapted from the Delphi method. This process started off initially as a series of interviews. In order to draw these interviews together, the process described below was followed.

The need for an expert panel for the Delphi method required people who had played an important role in one of the mergers. They were broadly categorised as consultants, managers, senior managers, staff and external specialists. Appropriate individuals who would fit the criteria were identified. They were approached, and all bar two agreed to take part in the research. In practice, there was not 100% participation as can be seen in Table 6 - Delphi participation.

1.3 The merger model

To structure the research a merger model that could describe the merger was required. This had to be a chronological descriptive model, in order to allow clear demarcation of the phases of the merger. The initial models examined were unsuitable because they ignored the change of control period, which is particularly important in this context. Two models in particular were identified. The structure of the Watson Wyatt (Galpin and Herndon, 1999) consulting model captured the focus on the "deal" making aspect and was useful because the M&A process is driven by a deal. The model proposed by

Habeck et al. (2000) has the advantage of recognising the basic chronological "chain" of the merger.

Using the model presented by Habeck et al. as a basis, I began to incorporate the Watson Wyatt model. I wanted the resulting model to be something that practitioners would find useful and easy to remember. My first attempt to combine these two models was unsuccessful. My next attempt was to structure the merger process into three steps much as Habeck et al. had done, and then to sub divide these into two more stages. This seemed to be a clearer model. Figure 8 - Merger model shows the new merger model.

The model is supported by two research steps. Firstly, the bank's literature (primarily the planning documents) and public domain literature relating to the two mergers was examined.

This process began to validate the model. Publicly available interviews [DOC26C] described the prelude and agreement phases of the merger. These resulted in the announcement and the initial efforts surrounding that to manage external and internal communication. Examination of the Following this there were many examples in the planning documents to substantiate the following three steps; pre-integration, change of control and post-integration. The process showed that the language of the model needed to be changed to reflect the wider use of the terms "change of control" and "integration" within the acquisition. From this, the current model is produced:

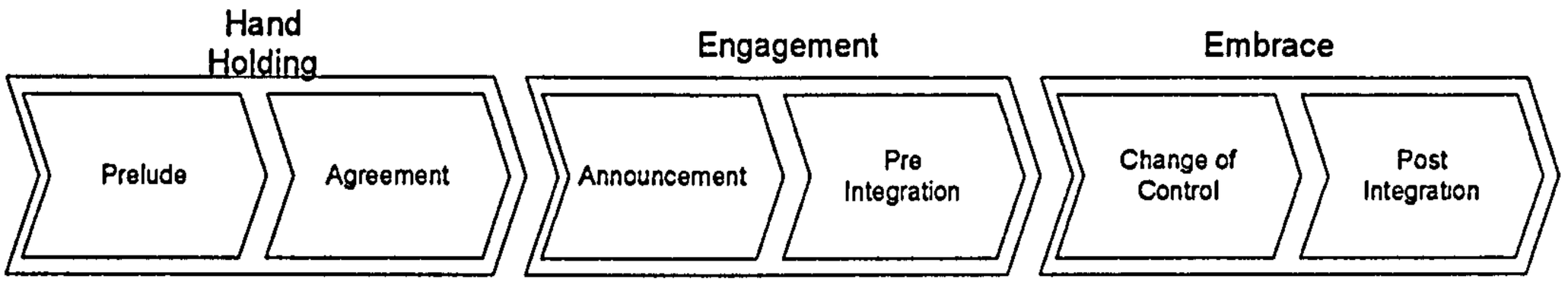

Figure 8 - Merger model

The next step in the validation process was to present this at the start of each interview to the interviewee and invite them to comment on it in the form of a brief discussion. From this process there were no further recommendations, but all interviewees said that they found the model appropriate. The model also helped to focus the conversation on the change of control period.

The design devised was therefore intended to tackle the data sources in two similar ways. The experts available would be used in a Delphi-type study to identify and evaluate the merger risks. At the same time, I would review the company records available to me so as to identify the risks presented within them. A risk classification would then be applied to the risks so as to make it possible to compare the two sets of data.

1.4 The Delphi study

This section describes the method followed for the Delphi study. A Delphi study usually takes the form of creating a questionnaire. Next, a panel of experts is formed. The questionnaire is circulated to the panel, who answer each question. Then they are asked to answer the question again, and they are able to see the average results from the previous iteration. This is usually continued until there is little difference between the answers from each iteration, or until the number of iterations is considered sufficient. In practice the number of iterations rarely exceeds three or four (Dalkey,

1969; Fourlis, 1976; Hiltz and Turoff, 2001; Jenkins and Thoele, 1991). I decided to deviate slightly from this approach by interviewing each member of the panel and using their feedback to produce the questionnaire.

My first task was to select a panel of experts. Panel selection was made easier because I had worked in a central role in this acquisition, so I knew who these people were, and I had access to them. In addition, because the research was supported by Bank C, I did not have to face any ethical issues with confidentiality. I started by drawing up a list of people who had worked on the project at various levels, but in a position that was sufficiently central to allow them have a cross-organisational view of the acquisition. Of those with whom I could still make contact, over twenty were identified as potential participants. These were classified into a number of categories based on their role. These were external consultants, managers, senior (top team) managers and control centre staff. A panel size of 15 was selected because it was possible that there would not be 100% participation, and this is the "high end" of the optimum panel size. Panel members were selected by their areas and business unit to elicit as wide a group of responses as possible. From this a panel of 15 participants was formed, and of these two declined to take part in the process and one who agreed did not partake. The panel was balanced in terms representation from each group. The method of qualitative data collection is based around the Delphi method. For it to be effective I needed a body of individuals with expertise and knowledge of the merger being studied. The people needed to have worked in areas where they would have been exposed to a wide range of issues, and thus not bias the data. As it is quite possible for a group of people with similar backgrounds to exhibit groupthink behaviour (Wright and Schaal, 1988), this can lead to rationalising behaviour, which

might bias the research. To reduce the possibility of bias resulting from a homogeneous panel, a cross-section of people was drawn from different levels within the organisation, including external resources. All of the external resources were consultants who had worked on the acquisition. To this I added an external member who had not worked on the acquisition, but who is a leading academic, and is generally considered to be one of the UK's experts on mergers and acquisitions. His input was included because he could bring a wider perspective than merely this particular acquisition. All the members of the panel were approached and agreed to take part. In total two iterations of the questionnaire were circulated; these are referred to as Delphi 1 and Delphi 2. Not all panel members took part at every stage of the process. The actual level of participation is shown is shown in the table below.

Area	Interview	Delphi 1	Delphi 2
Consultant 1	Yes	Yes	Yes
Consultant 2	Yes	Yes	No
Consultant 3	Yes	Yes	No
Manager 1	No	No	Yes
Manager 2	Yes	Yes	Yes
Manager 3	No	Yes	No
Senior Manager 1	No	Yes	No
Senior Manager 2	Yes	No	Yes
Specialist 1	Yes	No	No
Staff 1	Yes	Yes	Yes
Staff 2	Yes	Yes	Yes
Staff 3	Yes	Yes	Yes

Table 6 - Delphi participation

To start the process I decided to conduct two semi-structured pilot interviews. The basic structure of the interview was:

- Introduce myself
- Explain the research in general terms
- Explain Project 1 and its goals
- Explain the method of research
- Ask the interviewee to describe their position at the time of the merger
- Present the merger model and invite any comments; and
- Conduct the interview by asking a series of questions, prompting where necessary by asking follow-up questions. The focus of Project 1 is around the CoC, so the questions focused on this period.

As I was satisfied with the result of the two pilot interviews and the data collected during them, it was possible to progress and attempt to interview the remaining candidates. All participants agreed to the use of a cassette tape-recorder.

1.4.1 Identifying and extracting risks

To allow me to analyse the risks from both the Delphi study and the review of company records, it was necessary to create a structured classification for the risks identified. This was developed by starting with the root risk 'The merger fails' and working "back" from there. If a risk did not contribute to the primary risk, then it was outside the scope of my research. By "working back" from there, a six-tier hierarchy was developed, into which each risk could be classified. This is illustrated below:

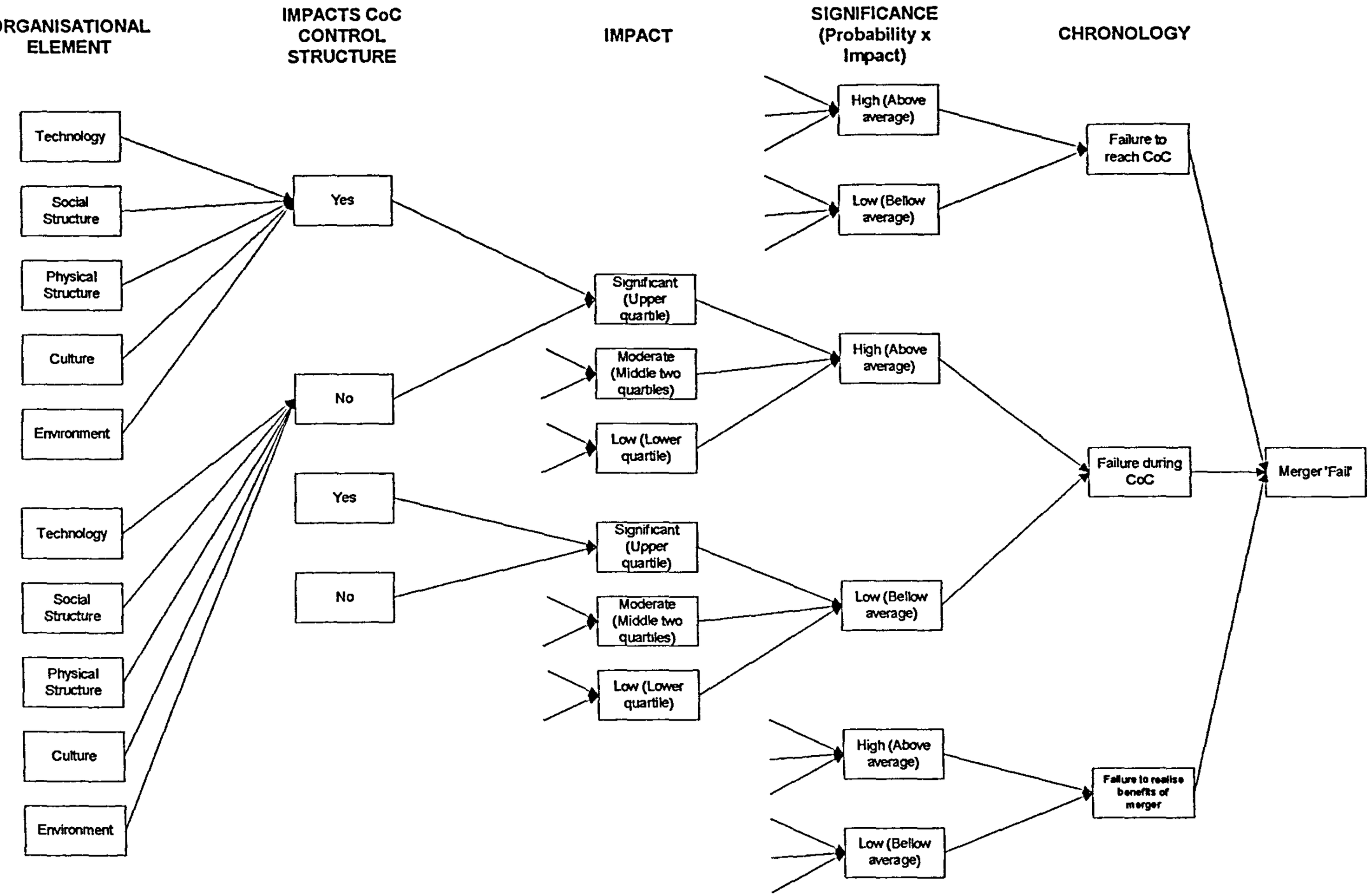

Figure 9 - Risk classification

Layer	Contains	Valid Classifications
Merger failure	Risks that could result in the merger failing	Yes
Chronology	When the risk can first occur	Pre-CoC CoC Post-CoC
Significance	What is the significance of the risk? For interview data this is based on the impact multiplied by the probability. Above average is rated high, otherwise it is rated as low. For document originated risks this is rated as high.	High Low
Preparation	The level of preparation. For interview-originated risks this is based on the quartile into which the mitigation is rated as falling. For document-related risks this is rated as described earlier.	Significant Moderate Low
Impacts CoC structure	Can the risk impact the CoC control structure in any way?	Yes No
Organisational element	To which organisational element does the risk belong?	Technological Physical Cultural Social structure Environment
Specific risks	The specific risks which must fit into the structure.	

Table 7 - Risk classification

This structure is clearly very useful for risk classification. I also require the data and structure to be useful for business practice. To facilitate this, the data is also available

as a database, which allows the risks to be treated as an n-dimensional cube which is "sliced and diced" in various ways, and is called the "risk cube". This means that a user of this database could select, for example, those external risks which could impact the CoC. This is useful because it allows practitioners to divide the risks for allocating each one to the person who is going to manage that risk.

The risks are entered into a database as they are identified. Each risk is tagged with as much meta-data as possible. For each risk the following meta-data could be entered:

Metadata	**Description**
Risk number	A unique number assigned to each risk
Short name	Brief description of the risk
Description	More elaborate description of the risk
Merger	Can the risk impact the merger – Yes/No
CoC impact	Can the risk impact CoC – Yes exclusively/Yes inclusively/No
CoC manifestation	Can the risk manifest itself during CoC - Yes exclusively/Yes inclusively/No
Immediate impact	Does the risk have immediate impact – Yes/No
Impacts control centre	Can the risk impact the control centre or control centre structure - Yes exclusively/Yes inclusively/No
Average probability	Average probability of the risk occurring (only applies to the risks identified in the Delphi process) – score between 0 and 6
Average impact	Average impact of the risk occurring (only applies to the risks identified in the Delphi process) – score between 0 and 6
Average mitigation	Average level of mitigation of the risk occurring (only applies to the risks identified in the Delphi process – score between 0 and 6
Source interview	The source of the risk is an interview – Yes/No
Source documents	The source of the risk is a reviewed document– Yes/No
Source literature	The source of the risk is public literature – Yes/No

Metadata	Description
Source	A reference to the source of the risk
Contributes to	Number of the risks that this risk contributes to
Pre-CoC	This risk can manifest itself during the pre-CoC phase
CoC	This risk can manifest itself during the CoC phase
Post-CoC	This risk can manifest itself during the post-CoC phase
Significance rating	The rating of the significance of the risk – High /Low
Mitigation rating	The rating of the mitigation of the risk – High /Moderate / Low
Organisational element rating	Coding of the organisational elemental category the risk belongs to – Technical/Social Structure/Culture/ Physical/Environment

Table 8 - Meta-data added to risk data

The original intention was to transcribe every interview, and initially three interviews were transcribed, but this proved deliver little benefit. Instead, each interview was carefully listened to, and from it, a series of risks to the successful completion of the merger was identified. These were entered into a work document with a page for each interview. To guide this activity a comment would only be considered a risk if such a thing, should it occur and be unchecked, no matter how small, could impact or delay the completion of the change of control or the merger itself.

From each of these sheets the various risks are distilled down to the essence of the risk. For example, a risk that might suggest that there is a danger that staff cannot use a particular tool is in essence the fact that staff are not familiar with or trained to use the tools available to them. By following this distillation process, and by combining risks from various interviews, a list of 55 risks was created. Each risk was assigned a unique reference number (Risk Number). The data relating to the classification of the risk was also entered with it. These included the phase of the merger the risk could impact, whether it would have an immediate impact, and so forth.

Within this database there is a special report which was used to produce the risk questionnaire. This questionnaire, plus a two-page instruction sheet was sent to each participant. Participants were then invited to evaluate each of the risks in terms of:

- Severity of the impact if it were to occur
- Probability of it occurring; and
- Degree to which the organisation was prepared to address the risk, i.e. the degree of mitigation.

Participants indicated any identified risks which they felt were not actually a valid risk. They were also instructed that if they felt they could not comment on a risk, they should just leave it blank. These results were also entered into the risk database.

Following initial analysis a second questionnaire was prepared for Delphi 2. This was similar to the first but also included the average value for each parameter (probability, impact and mitigation) from the first round (Delphi 1). This was sent to each participant. In addition, each participant was given a copy of the values they had chosen in Delphi 1. They then returned the questionnaire with their replies. This data was then entered into the database with the earlier data. The data from the two Delphi iterations was then copied into a spreadsheet to facilitate its analysis.

In addition, participants' replies were also tested between iterations to see if they had changed significantly. This was done using the non-parametric Wilcoxon test (Jenkins and Thoele, 1991). The analysis of the results from Delphi 1 and Delphi 2 indicated that a third iteration was not required, and so no further iterations were conducted.

This process is somewhat different from the usual model of how the Delphi method is conducted (Jenkins and Thoele, 1991). The main difference in this instance is that the risks are extracted from the participants through the interviews, rather than presenting risks based on prior research. A pilot questionnaire was not used. This process continues until there are no significant changes in the group's response, identified using the Wilcoxon test.

1.5 Data from company records

A large amount of documentary records are produced as a product of mergers of this size. A substantial amount of the non-financial data was available for this project. This data existed in three forms; paper documents, electronic files and electronic databases. The data presented two important problems. The first was how to make copies of any documents which were unique. The second was how to manage the volume of data.

Because some of this data is unique, the first step was to create a copy. The paper documents were photocopied, and electronic documents were copied onto CD ROMs. To appreciate the volume of this data, the paper documents filled ten A4 lever arch files. The electronic files required eight CD ROMs to hold all the data.

Because of the volume of data involved, I needed to develop an approach to enable me to reduce the amount of data quickly and efficiently. I developed a process that was designed firstly to filter out non-CoC data, then to classify the remainder and the selected examples that might be used as the basis of a documentary review.

The first step was to look at every document, both electronic and hard-copy, and identify those which related to the CoC. This was done by looking at the date of the document, the title and the table of contents. Where there was no table of contents, the main document headings were reviewed. If they made no reference to the CoC, they were discounted. In the case of electronic documents, it was also possible to search their entire contents. This was achieved by searching for a number of key phrases that would indicate whether or not they were related to the CoC. These key words were:

- Change of control
- Sign-off
- Control centre
- Dates of the CoC and CoC dress rehearsal dates; and
- Integration week-end.

This process took several weeks. It facilitated the reduction of the set of documents to around 200. These were then classified according to the acquisition to which they related (Bank B's acquisition of Bank A or Bank C's acquisition of Bank B). In addition, risks were classified based on the type of document in which they were identified. The categories were:

- Plan – Project schedule
- Plan – Project discussion
- Control document
- Control record
- Rota
- Business approach document

- Internal communication
- Public document; and
- Other.

The documents within each classification contained a number of duplicates, and there were multiple versions of some documents. This allowed duplicates and older versions to be deselected. The contents of some categories were largely similar. Where this was the case further documents were deselected. The remaining subset of documents was then revisited. Each was reviewed and treated in much the same way as the interview data. Risks were identified in each document and entered in the risk database. They were coded in the same way as the interview data. All were tagged as significant risks based on the premise that they had warranted formal recognition from management. All were tagged as being well mitigated, except for the situations where I was aware of problems with the way the risk was managed.

2 Results

This section describes the analysis and findings based on the data collected in this project.

The first concern is the degree of confidence one can have in the reliability of the data and method. Confidence in the reliability of the data and method is derived from four factors. The first of these is that the sample group of participants is drawn from the (small) population who are in a position to observe the acquisition process across the whole of the two organisations. The second is the use of the Delphi based approach offers anonymity which makes it possible to avoid many of the issues such as the role of dominant individuals which can impact similar methods. The third is the similarity

between the risks identified in the Delphi technique and the review of company records in terms of classification, in particular the dominance of technology risks. The fourth and final factor is the use of a consensus based approach to evaluate the risks which means each participant has had a chance to add their input and thus the data is not biased by one or two people's opinions.

2.1 Delphi study

In total 14 participants were invited to take part in the Delphi study. Of these two declined and one who accepted did not actually take part. Of the remaining 12, interviews were given by 9 (75%), 9 (75%) returned the questionnaires for the first Delphi iteration, and 7 (58%) returned questionnaires for the second Delphi iteration. In total, all of the 12 who agreed to take part participated in some way. When a respondent responded to the first questionnaire but not the second, their answers were carried through to the second project. This made it possible to compare data between the two iterations. It is thought that 13-15 participants is the optimal size for a Delphi study (Dalkey, 1969).

From a statistical point of view, the quantitative data analysis is based upon a very small sample set (12 people, of whom 11 have responded to some stage of the Delphi iterations).

The distribution of risks identified in terms of the organisational element to which they relate shows a high focus toward technological risks, which is to be expected in a highly technological and information-centred industry. The distribution is:

Organisational Area	Number of risks	(%)
External	0	0%
Physical	3	5%
Social structure	7	13%
Culture	9	16%
Technology	36	65%

Table 9 - Classification of risks identified through the Delphi process

2.2 Significance versus mitigation

This section examines the data from the Delphi process in terms of significance and the level of mitigation.

In this research, when I refer to significance of a risk I am referring to the product of the impact and probability of the risk occurring. This is very similar to the definition of risk as presented by Warner (1992), which is based on British Standard BS4778 1991. The difference is that each risk identified in the Delphi process is assigned a score. The score for significance is calculated as follows:

$$significance_{\min} = MIN(impact_{1..55} \times probability_{1..55})$$

$$significance_{\max} = MAX(impact_{1..55} \times probability_{1..55})$$

$$significance_n = \left(\frac{(impact_n \times probability_n) - significance_{\min}}{significance_{\max} - significance_{\min}} \right) \times 100$$

Equation 2 - Formulae for calculating risk significance

The mitigation score is also calculated for each risk. The participants in the process as asked to evaluate the degree of mitigation of each risk on the questionnaire. This can be seen in the sample questionnaire in Appendix A. The latest values recorded by each participant in the process are averaged for each risk and then used in equation below to calculate their overall score.

The score for mitigation is:

$$mitigation\_score_{\min} = MIN(mitigation_{1..55})$$

$$mitigation\_score_{\max} = MAX(mitigation_{1..55})$$

$$mitigation\_score_{n} = \left(\frac{mitigation_{n} - mitigation\_score_{\min}}{mitigation\_score_{\max} - mitigation\_score_{\min}} \right) \times 100$$

Equation 3 - Formulae for calculating risk mitigation

These two scores are calculated for the risks identified in the Delphi research. The significance of risk represents the level of danger to which the organisation is exposed during the M&A process. The migration score represents the organisation's degree of preparation to deal with the risk. In this it would seem desirable that there be some correlation between these two variables. With good risk management one would expect that the level of ability to address a risk would be largely proportional to the significance of the underlying risk.

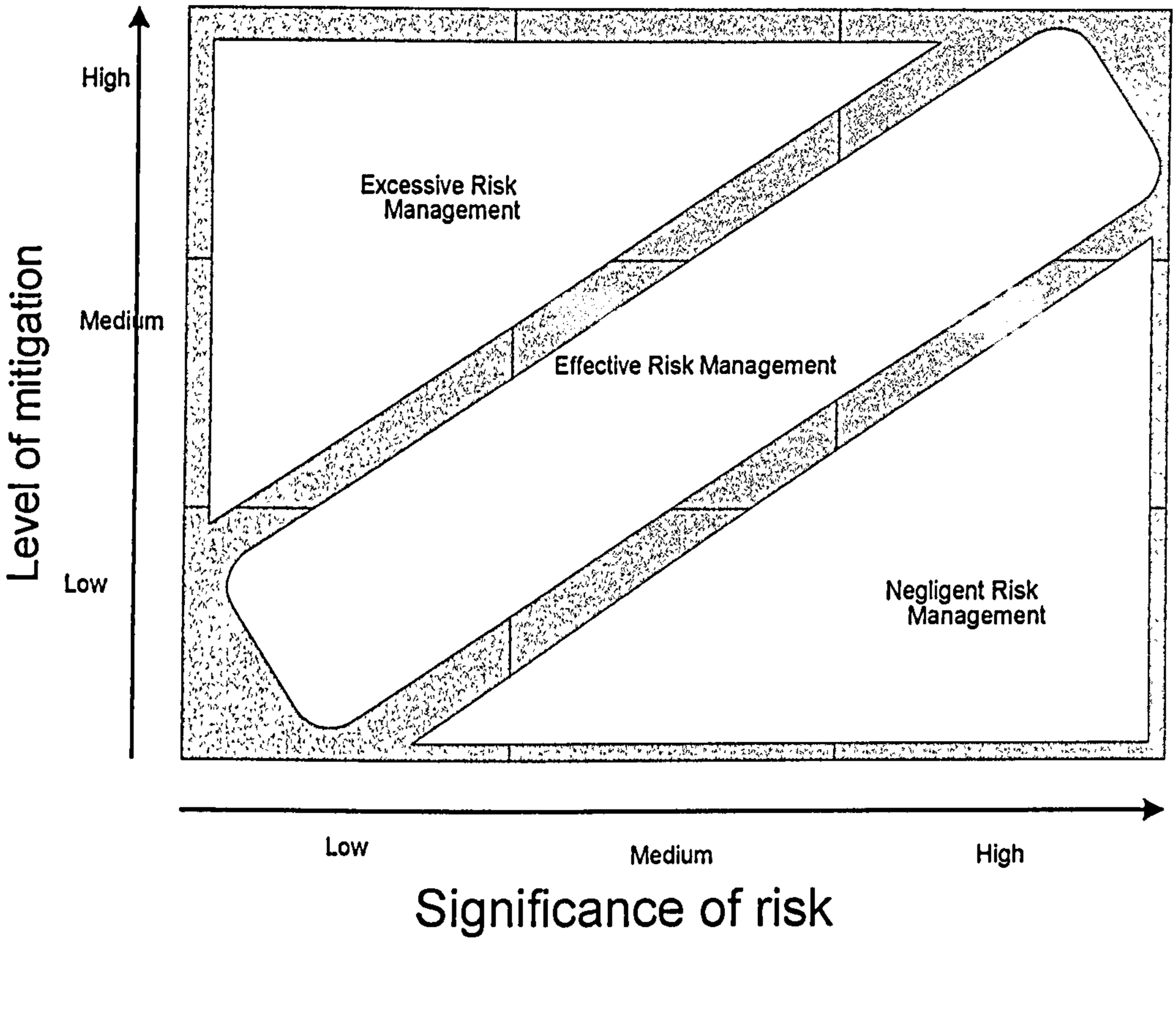

Figure 10 - Classification model of level of mitigation and significance of risks

This is illustrated as the region of effective risk management in the figure above. This illustration also shows two additional regions, one which I call *excessive* and the other *negligent* risk management. The excessive region is composed of the ten risks whose points are furthest from the average mitigation/significance line and which have a mitigation value greater than the significance value. The negligent region is composed of the ten risks whose points are furthest from the average mitigation/significance line and which have a mitigation value less than the significance value.

In order to visualise the data it is plotted on a graph showing the risks at the intersecting point of their level of mitigation and significance of impact. Excessive

risks are illustrated by having their risk number in red, the ten most negligent are in blue, while the ten most balanced are shown in green. Other risks are shown in black.

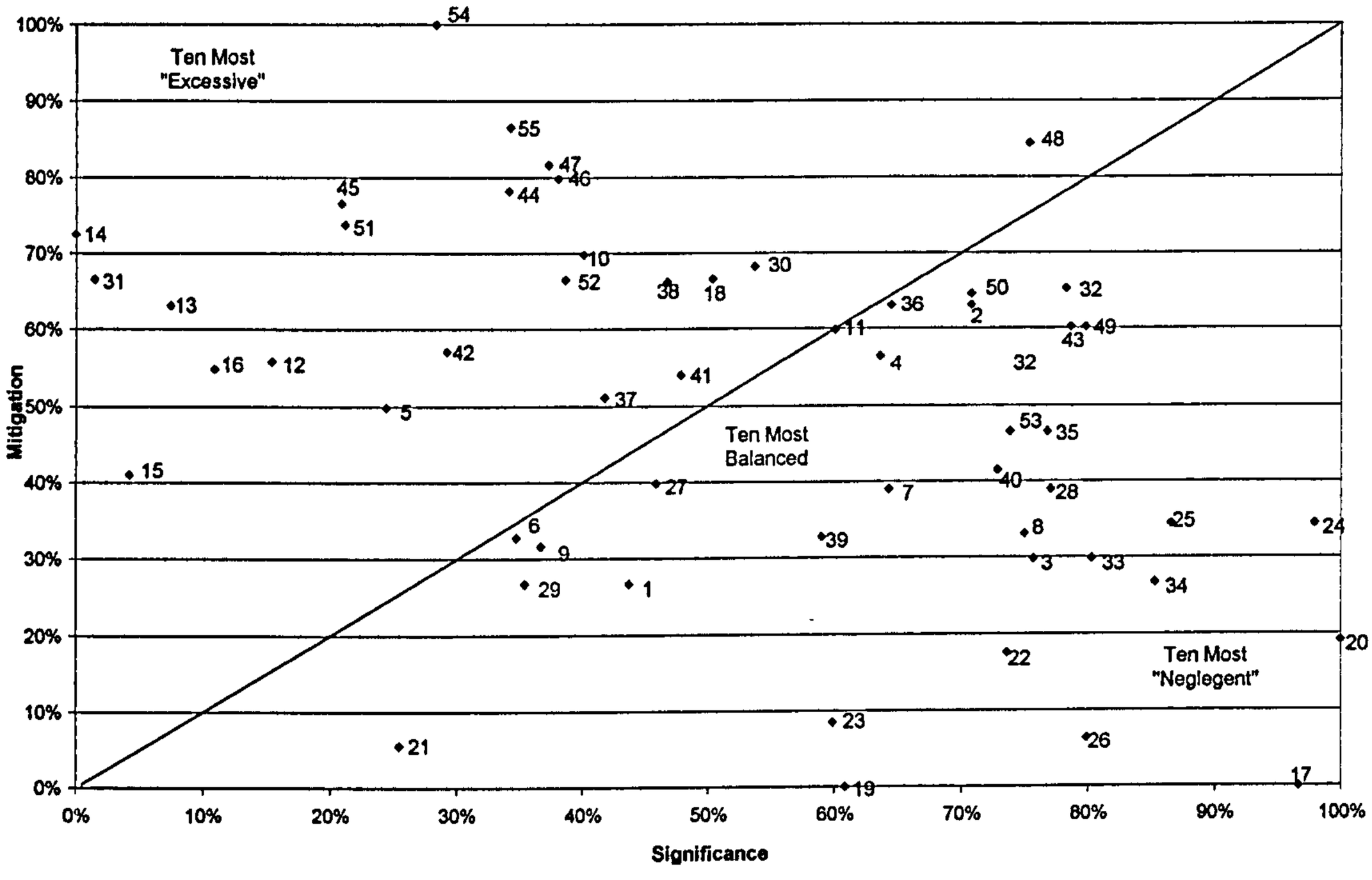

Figure 11 - Significance versus mitigation scores

This illustrates interesting findings about the risks identified, in particular those in the excessive and negligent regions.

The relationship between the risks and their organisational classification is shown in the table on the following page:

Risk Number	Classification
1	Culture
2	Technology
3	Culture
4	Culture
5	Social Structure
6	Technology
7	Technology
8	Social Structure
9	Technology
10	Technology
11	Technology
12	Technology
13	Physical
14	Physical
15	Physical
16	Social Structure
17	Technology
18	Technology
19	Social Structure
20	Social Structure
21	Culture
22	Culture
23	Culture
24	Technology
25	Culture
26	Technology
27	Technology
28	Technology

Risk Number	Classification
29	Technology
30	Technology
31	Technology
32	Technology
33	Culture
34	Social Structure
35	Technology
36	Technology
37	Technology
38	Technology
39	Technology
40	Technology
41	Technology
42	Technology
43	Technology
44	Technology
45	Technology
46	Technology
47	Technology
48	Technology
49	Social Structure
50	Culture
51	Technology
52	Technology
53	Technology
54	Technology
55	Technology

Table 10 - Classification of risks identified in the Delphi process

2.2.1 Excessively managed risks

The table below shows the ten risks that are excessively managed, sorted by degree of excessiveness. These ten risks fall into two sets, each forming a cluster in the graph. The first are those relating to the CoC control structure (risk numbers 13, 31, 16, 45, 51, 44) and the second are those relating to the holding and valuation of financial position (risk numbers 54, 55, 47).

Ranking	Risk number	Description	Mitigation rating[3]	Control centre related?
1	14	Control centre staff do not 'know' their counterparts in other locations.	Significant	Yes
2	54	Trading desks not aware of their positions at the start of the CoC.	Significant	No
3	31	Control centre staff are overly practiced	Moderate	Yes
4	13	Control centre environment not comfortable	Significant	Yes
5	45	No event tracking in place	Significant	Yes
6	51	Control centre not set up correctly	Significant	Yes
7	55	Trading desks not aware of their positions during the CoC	Significant	No
8	47	Settlement function not clear as to which positions need to be settled, or when	Significant	No
9	44	Control centre staff not well trained	Significant	Yes
10	16	Inadequate mix of experienced and energetic staff in the control centre	Moderate	Yes

Table 11 - Ten most excessively managed risks

These two clusters of risks are clearly well managed. It is possible that they are overly managed, that is, that they receive management attention and corporate resources in

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[3] Significant = upper quartile, Moderate = second and third quartile, Low = lower quartile

excess of their relative importance. This indicates a possible inefficient use of resources. It also raises the question as to why they are overly managed when others are not sufficiently well managed.

2.2.2 Effectively managed risks

These risks are those which are rated as having a level of mitigation in proportion to the level of risk. Many of these (7/10) relate to the control centre, which is the core focus of the research. The others are more mixed, representing a range of risk areas. This indicates a significant focus on the temporary control structures introduced for the CoC compared with structures that are used for the CoC, but already exist.

There is a further interesting finding in this analysis. By mistake, in Delphi iteration 1, one risk was entered twice (as risk numbers 4 and 56). While this was not intentional it is interesting that both were rated as having almost identical mitigation levels and very similar significance levels (6% difference). This indicates a degree of consistency in the way participants answered questions in the study.

Ranking	Risk number	Description	Mitigation rating	Control centre related
1	11	Control staff not aware of contingency measures	Significant	Yes
2	36	Knowledge diluted by a single point of control	Moderate	Yes
3	6	Control centre staff do not fully understand what they are reporting	Low	Yes
4	9	Control centre managers are not good people managers	Low	Yes

Ranking	Risk number	Description	Mitigation rating	Control centre related
5	27	Valuation of the merger incorrect	Moderate	No
6	50	Organisation is not confident that the merger will actually happen	Moderate	No
7	41	Progress not reported "down" the organisation	Moderate	Yes
8	4	Business areas do not report progress in a timely manner	Moderate	Yes
9	2	Inter-organisational connectivity not achieved	Moderate	No
10	29	Escalation process too sensitive	Low	Yes

Table 12 - Ten most effectively managed risks

2.2.3 Negligently managed risks

The negligently managed set is composed of those risks where the level of mitigation is substantially lower than the significance of the risk. Of these ten risks, three are classed as technological, two social structure, and five cultural. Comparing this with the average for the 55 risks indicates that cultural and social risks are not being mitigated to the same degree as other risks. Two of the technological risks, plus the social and cultural risks, have significant elements of human-centric behaviour.

Rank	Risk number	Description	Mitigation rating	Human centric
1	17	Need to rationalise software may mean that 'good' software is disposed of	Low	No
2	20	Management may focus on the	Moderate	Yes

Rank	Risk number	Description	Mitigation rating	Human centric
		"business" side of the merger and not the "human" side		
3	26	Talented resources not fully utilised	Low	Yes
4	24	Critical staff dependency	Moderate	Yes
5	19	Post merger staff not "introduced" to the new organisation	Low	Yes
6	34	Staff become "burned out"	Low	Yes
7	22	Staff are not aware of their position in the new combined organisation	Low	Yes
8	25	Organisations slow to mobilise themselves for the merger	Moderate	Yes
9	23	Personal contacts network no longer valid	Low	Yes
10	33	Co-ordination meetings too large	Low	Yes

Table 13 - Ten most negligently managed risks

The fact that such significant risks seem to have relatively low mitigation (risk number 17 has the lowest mitigation of all risks) is naturally a cause for concern for the target organisation.

2.2.4 Top ten risks

An extraction of the ten most significant risks produces the set of risks shown below. This list is sorted by significance. None of these risks enjoy a level of mitigation that would place them into the upper quartile, and 70% fall into the negligent category.

40% of these risks are of a technical nature, 30% social structure, and 30% cultural.

Rank	Risk number	Description	Mitigation rating	Negligent?
1	20	Management may focus on the "business" side of the merger and not the "human" side	Moderate	Yes
2	24	Critical staff dependency	Moderate	Yes
3	17	Need to rationalise software may mean that "good" software is disposed of	Low	Yes
4	25	Organisations slow to mobilise themselves for the merger	Moderate	Yes
5	34	Staff become "burned out"	Low	Yes
6	33	Co-ordination meetings too large	Moderate	Yes
7	26	Talented resources not fully utilised	Low	Yes
8	49	Non-trading areas not fully engaged	Moderate	No
9	43	System dependencies not clearly defined	Moderate	No
10	32	Business units not utilising central PMO resources	Moderate	No

Table 14 - Ten most significant risks

2.2.5 Relationship between the significance of the risk and the level of mitigation

To understand whether or not there is a relationship between these two variables it was necessary to search for evidence of a correlation between the level of significance and mitigation of a risk. My initial feeling was that there should be a positive correlation. Black (1999) identified five different ways of doing this. The first task was to select the

appropriate method. The values to be correlated are both interval, though they are based on ordinal values. Because of this I elected to use Pearson's product moment calculation. The result of this was -0.411**, an inverse relationship. With a magnitude of 0.41, it is moderately large, but when combined with the high statistical significance (97.5%) the result are statistically significant. The fact that the correlation is negative is of practical interest, because it could be an indication as to the behaviour of the organisation in the face of risk in an extraordinary problem domain. This means the that organisation is focusing on risks that are easier to mitigate, or which do not pose a significant threat. This behaviour is a significant finding and is of obvious benefit as something for the target organisation to be aware of.

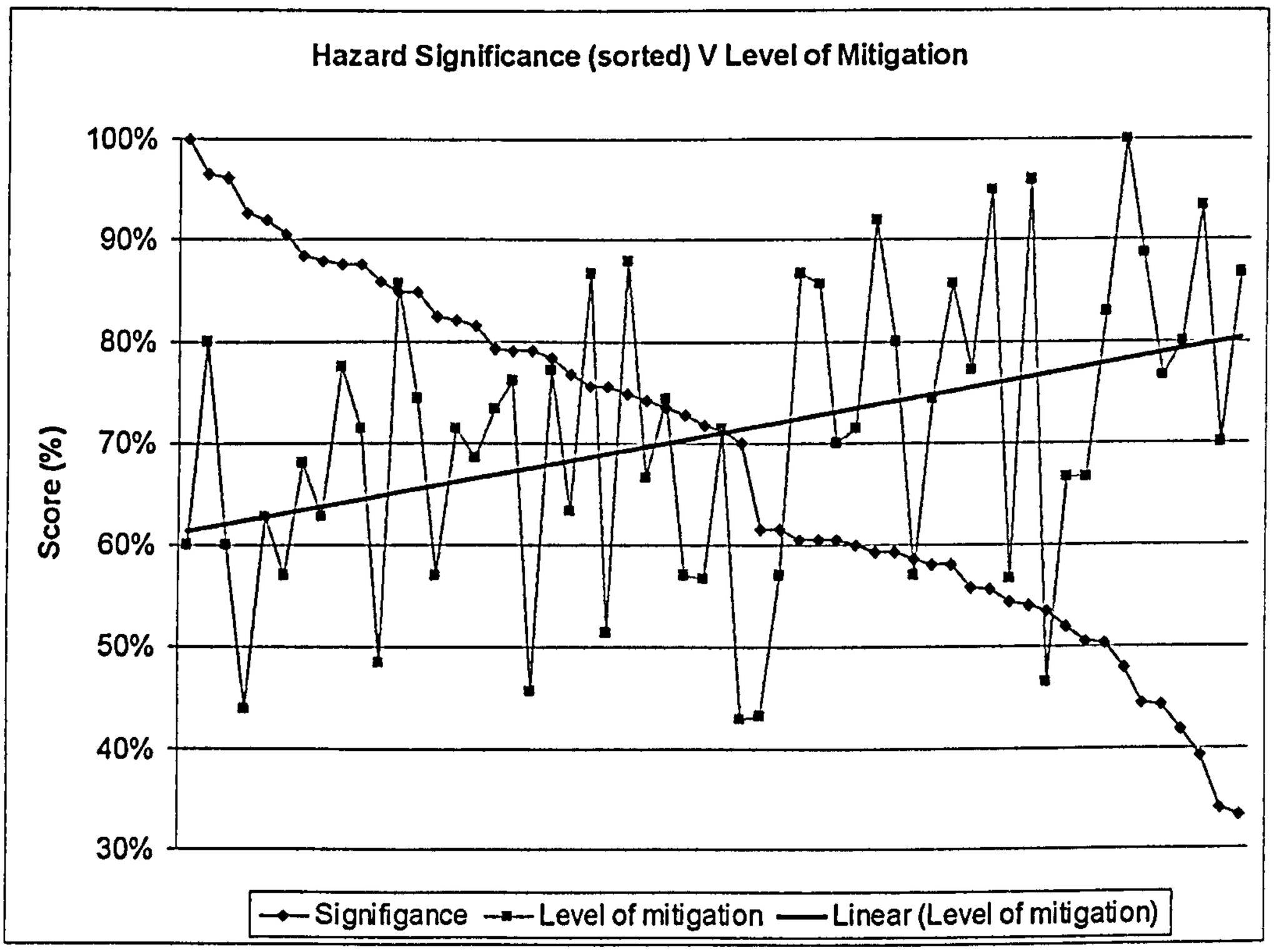

Figure 12 - Risk significance (sorted) versus level of mitigation

2.3 Documentary-based risks

The risks identified from the documentary evidence do not allow themselves to be evaluated in the same way as those from the Delphi study. This is because they do not have quantifiable significance and mitigation values.

They have been analysed to allow their comparison with those from the Delphi study. There are some fundamental differences in the nature of the classification of the risks.

The organisational classification of the two sets of risks is different. The majority of both sets of risks relate to technology. This is over 65% in each case. Because investment banking depends on processes that are very information-intensive to produce products that are also very highly information-intensive, it is not surprising that technology is important. However, the manner in which its prevalence exceeds all the others together is surprising. Where the contrast becomes significant is within the other four categories, as can be seen from the following illustration, Figure 13 - Risk classification of risks identified.

Environmental risks account for 7% of the risks in the documentation, while none were raised in the interviews. Physical risks are five times more prevalent in the risks uncovered in the Delphi process. Social structure and culture-related risks combined are not substantially different.

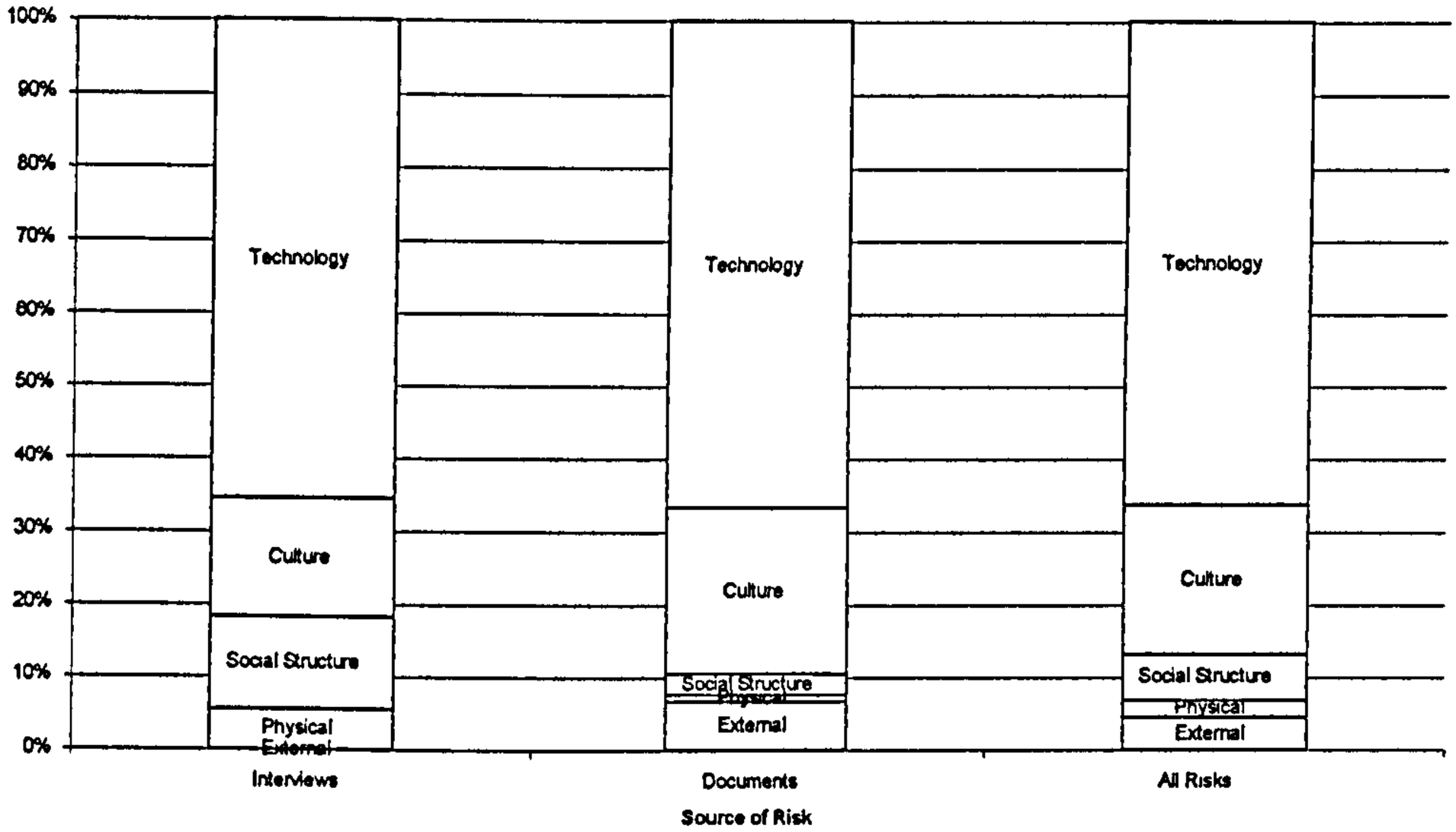

Figure 13 - Risk classification of risks identified

Figure 13, above, shows the classification of the risks identified through the Delphi process (see Table 10 - Classification of risks identified in the Delphi process) and the same classification of risks identified through the review of company documentation.

2.4 Chronological focus

Another method of comparison is to examine the chronological stages in which the risks can manifest themselves. The two Venn diagrams below illustrate the time frames in which the various risks can manifest themselves:

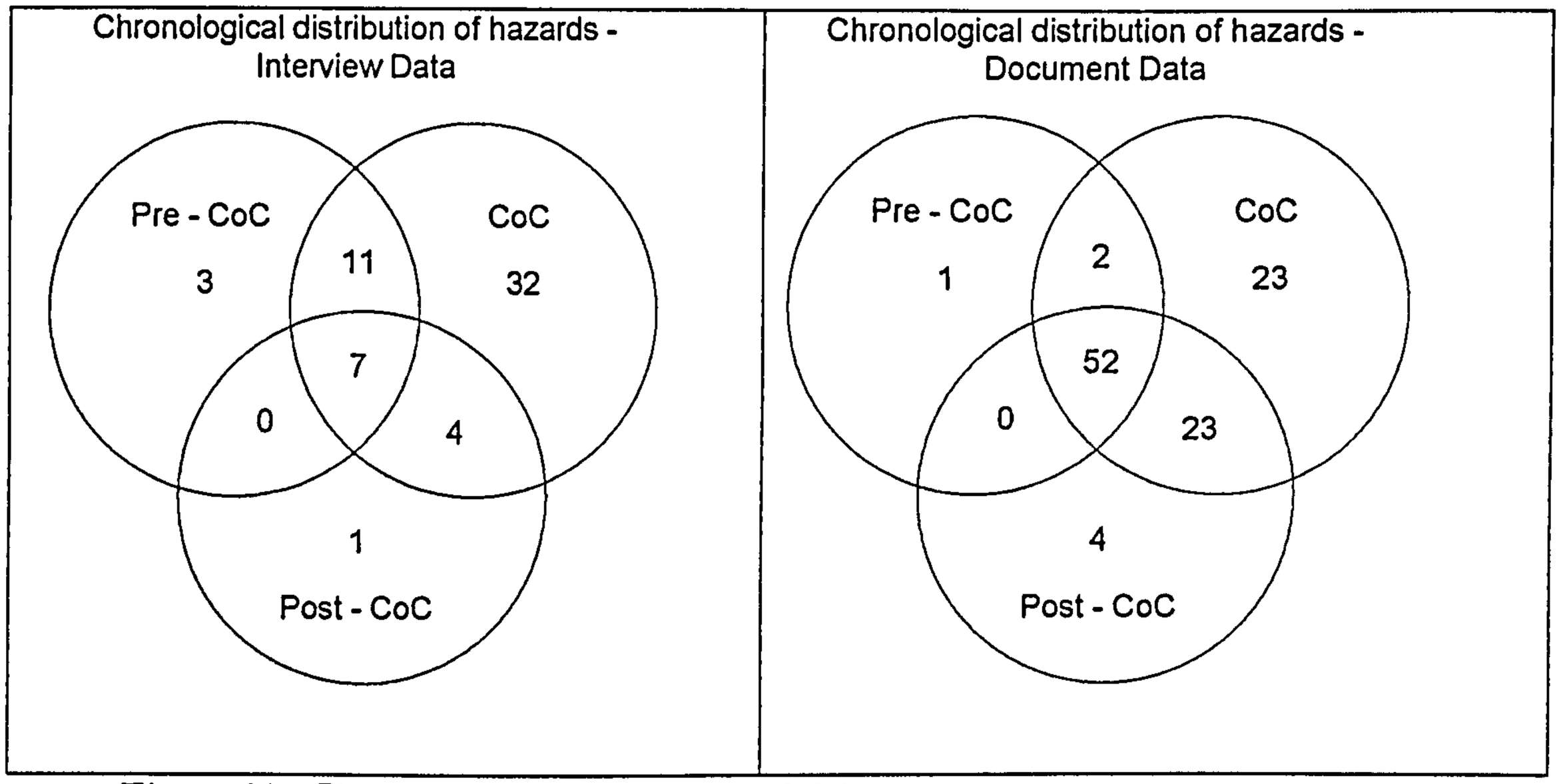

Figure 14 - Chronological distribution of risks

The documentary data shows that there is a significant number of merger risks that can impact the merger process at any juncture. Half of the risks identified in the documentation can have an impact at any point. This illustrates that whilst each phase is unique, the risks to be faced are not necessarily unique. The Delphi-identified risks are similar. However, there is a far greater number of risks which are focused on the CoC only, or the CoC and pre-CoC phase. This is probably a result of the interview method.

The distribution of risks is shown in Figure 15 below. This shows a very different focus between the two sources of risks.

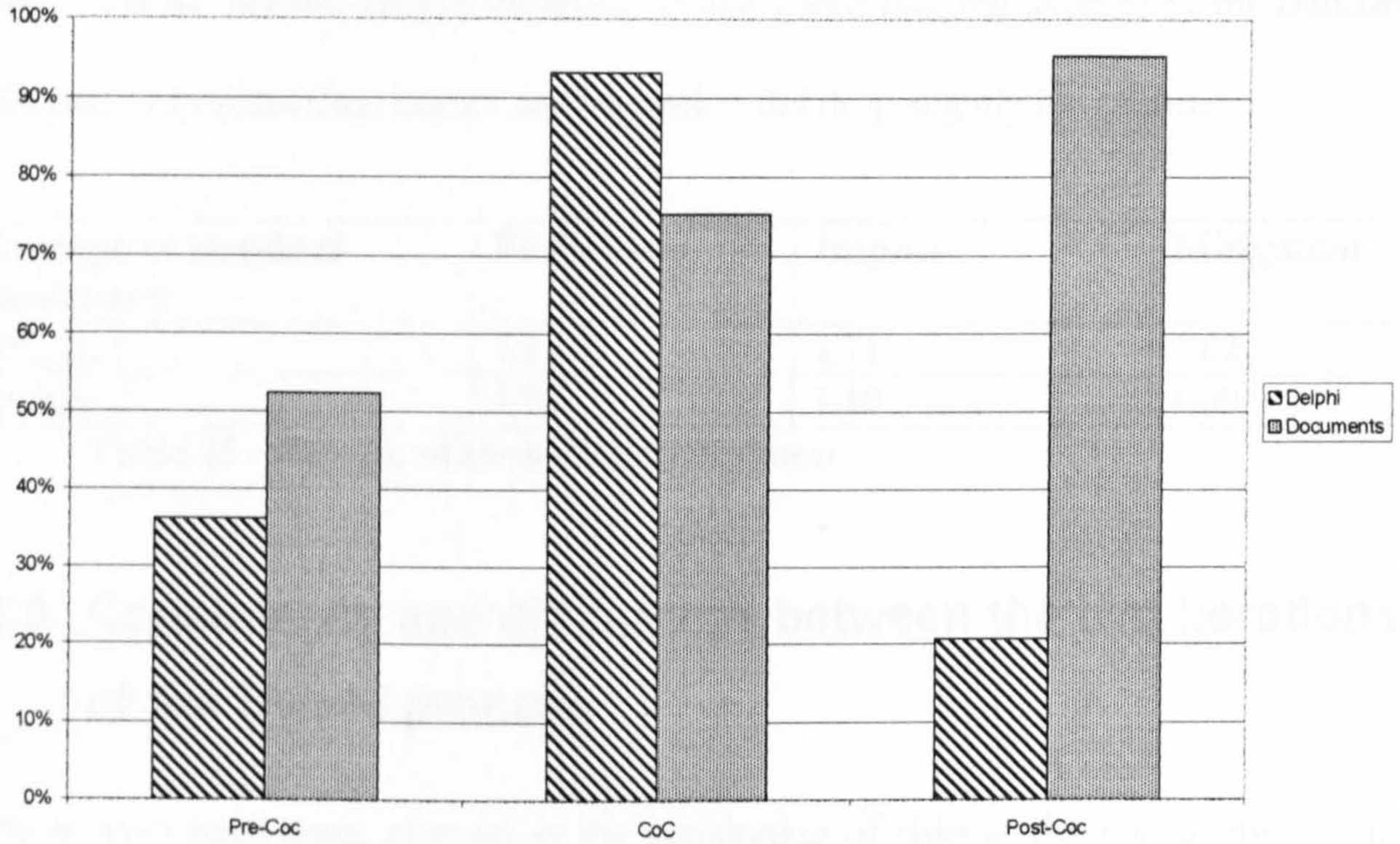

Figure 15 - Chronological distribution of risks

The risks identified in the Delphi study have a very tight focus on risks that will impact the CoC, while the risks identified in the documentary review are more evenly distributed and have a greater focus on the post-CoC timeframe. While this is to be expected because the documents are not necessarily focused on the CoC, it is interesting to note that there are risks identified in the documentation which can impact the CoC and post-CoC phase which were not considered by the panel.

2.5 Volatility in the range of answers submitted

There is variance in the answers submitted in the Delphi process. For each parameter, I calculated range (difference between maximum and minimum) and standard deviation. The results of this calculation are shown in Appendix L.

The calculation of range and standard deviation shows that there is a wide range of opinions between individuals in specific risks. This had not significantly decreased,

even with the second Delphi iteration. It was noted that the average of the standard deviation of probability, impact and mitigation did drop slightly for all three:

Average of standard deviations	Probability	Impact	Mitigation
Delphi 1	1.15	1.11	1.02
Delphi 2	1.12	1.10	1.00

Table 15 - Results of each Delphi iteration

2.6 Consistency and differences between the two iterations of the Delphi process

There have been some changes in the positioning of risks at the end of the second Delphi process. This resulted in changes in the specific risks which constituted the various "Top Ten" lists. It was necessary to test whether these changes were of any statistical significance. To test this, the pairs of data (scores between the two tests) were statistically compared for similarity. This was done using the Wilcoxon test. The Wilcoxon test is useful because it considers the sign as well as the magnitude of difference between the pairs of samples.

Since there were two iterations of the Delphi method, there were pairs of average values for each risk's attributes in terms of impact, mitigation and probability and the calculated significance score. The Wilcoxon test considers the difference between the values in each matched pair. It is applied to the pairs (Delphi 1 & Delphi 2) values collected for probability, impact, mitigation and calculated risk significance.

For each pair (e.g. probability score for each risk) the difference, *d* between the Delphi 1 (X1) and Delphi 2 (X2) values is calculated and ranked. Where the difference is 0, it is discarded thus reducing the sample size, *n*. These differences are ranked by absolute value and added up by sign, that is the total number of differences for X1 > X2 and

the total number where X1 < X2. T is assigned the lesser of these two values totals. This value is then compared to the critical value of T for that sample size at various levels of statistical significance. Because in this instance I was not concerned with the direction of any difference, i.e. I wish to know how similar the two pairs of values are only; I used a single sided test. The critical value is read from a table of critical T values based on sample size, type of test (one or two tailed) and statistical significance.

The values used and intermediate calculations are shown in Appendix F – Wlicoxon test results. The results are summarised in the table below:

		Probability	Impact	Mitigation	Significance
		n = 54 T = 430	n = 49 T = 405	n = 53 T = 119	n = 55 T = 470
Critical value of T at confidence interval	P=0.100	546	446	526	566
	P=0.050	510	415	491	529
	P=0.025	470	380	452	488
	P=0.010	441	356	424	458

Table 16 - Results of the Wilcoxon tests

This tests the hypothesis that the two population pairs have the same median. The result of the tests are shown in the table above. This shows that the two sets of data are similar at the 95% confidence level for all risk parameters, and at the 99% level for all except the risk impact level and significance. This illustrates that a high degree consistency was achieved.

2.7 Degree of correlation

The calculated values of correlation changed between the two iterations. The sign was unchanged, and remained negative. The magnitude increased from 0.36 to 0.41.

3 Discussion

This section presents and discusses the findings of Project 1. There are important contributions to methodology, empirical, theoretical and practitioner knowledge. Specifically, there are nine contributions to be drawn from the research. These are:

1. The behaviour of the target organisation in relation to risk management is contradictory to that which would be predicted by traditional perspectives of risk management

2. The target organisation has a significant focus on technology risks

3. The Delphi method can be successfully applied to post-facto investigations

4. The nature of the risks that are managed in an excessive manner; these tend to be risks which can be controlled with formal management processes

5. The nature of the risks that are managed in a negligent manner; these tend to be risks that are behaviour-based

6. Individuals may place a different emphasis on the CoC from that of the collective mind of the firm

7. Focus of the firm's records is different from that of the individuals in the panel

8. This is the first project to collect data pertaining to this phenomenon; and

9. The merger model proposed in this research is supported by field research.

The first finding is that there is an inverse relationship between the level of significance and the level of mitigation, which constitutes a considerably discovery. One would

expect that the higher the significance of a risk, the higher would be the level of mitigation. The fact that this is not the case in practice raises questions about the organisation under study. What could be the cause of such an inverse relationship? It could be culture, resource issues or some other factor, such as a symptom of an organisational "blind spot", or something that it is just not good at addressing, such as human-centric issues or culture. It could also be the case that in a merger situation there is not the time to address these issues correctly. Worse still, it could indicate the avoidance of addressing difficult risks.

The relationship between these two also means that we can consider them in terms akin to economic efficiency. In an ideal world all risks would be fully mitigated, but this would probably be inefficient. The optimum, therefore, is to mitigate risks in proportion to their risk significance, assuming there are none which have infinite or near infinite value for significance or mitigation. Where there is a resource constraint it may be necessary to dedicate fewer resources to mitigate certain risks. This might be done by investing less in the less significant risks. My findings do not actually fit with any of these hypotheses.

The second is the bias towards a focus on technology. Almost two thirds of all risks identified are technological. At one level this is not entirely surprising. Investment banking is an industry where the product has a high level of information content and the processes involved are highly information-intensive. Because of this the emphasis upon technology that is presented by having so many risks in that classification is not a major surprise.

The practitioners interviewed considered human-related factors to offer the most significant risks. This could mean that risk management would be best served by

addressing these first. There is also the possibility that the technological-related risks are the easiest to imagine and quantify. Furthermore, technological risks require solutions that can be imagined in absolute terms. Therefore, they may be the ones that are concentrated upon, perhaps to the detriment of others.

The third is the nature of risks that were excessively managed. These belonged to two classifications. Some were related to the CoC structure. This might be explained by the importance that is placed on the structure during the CoC. The second cluster relates to positions valuation and settlements valuation. These are essentially financial accounting activities to facilitate the financial control and trade settlement. These are what might be described as "hard" issues. They are procedural and can be managed in a procedural way.

The fourth is the level of mitigation of the most significant risks. Examination of these illustrates two important points. The first is that human-centric issues are the most important during this acquisition's CoC activity. Regrettably, these are probably also the most difficult to manage and evaluate quantitatively.

The fifth finding is the extension of the Delphi method as a tool for empirical research. The Delphi method is just as capable of being successfully applied to analysis as it is to forecasting. The project is not just an extension of the method, but also contributes to its further use in research.

The sixth finding is that the focus of the individuals in the expert panel members is different from that of the organisation as reflected by the formal documentation collected in this research. This indicates that the collective mind is separate from that of the individuals who comprise it (Weick and Roberts, 1993). It also supports the

view that the organisation can be viewed a neural network (Weick and Roberts, 1993) as this is a property of a neural network (Hecht-Nielsen, 1991).

The seventh finding is that there is a different temporal focus between the organisation as recorded in its documentation and the individuals who took part in the research. The panel had a far greater focus on the risks that might impact the CoC period, compared with what was found in the documentation. This might reflect a bias introduced by the research (Sudman and Bradburn, 1982), or it might indicate the importance of future orientation and risk perception (Das and Teng, 2001b). It is also possible this is the result of the Delphi method being post-facto, while the documentation is clearly pre-facto.

The eighth contribution relates to the identification of detailed and specific M&A risks in this industry. Even the most recent and practitioner-focused researchers, such as Galpin et al. (1999), have attempted to present the various risks that managers may face in these situations. However, these present the risks at high levels (staff retention) with only occasional references to specific examples of what these risks might be. One of the results of this research is the identification of almost 300 specific risks. Further research is needed to ensure that these represent a complete and comprehensive set of risks. The risk list needs to be presented in a manner that managers can use in practice. The initial "risk cube" described earlier is a step towards this.

The ninth finding is the support that was found among practitioners for viewing the merger using the chronological steps indicated in the merger model.

3.1 Conclusion

This project has identified a number of risks faced by a group of investment banks when executing M&A activities on their own account. For many of these there are estimations of significance and levels of mitigation, or the ability of the organisation to address them.

Currently the findings apply to the two mergers under investigations. This is certainly not proof of generalisation, but the findings do present strong evidence to suggest that:

- The merger model developed at the start of this research describes the event sequence for the acquisition
- Investment bank acquisitions have a strong focus on technology
- Significance in relation to mitigation could have an inverse relationship to the target organisation
- The organisation is more sensitive to risks with which it has a high degree of familiarity
- Some risks are excessively managed, while other are negligently managed; and
- Many of the most significant risks are not technological, and of those that are, many have a "human" element.

The findings raise important questions about the relationship between the level of mitigation of merger risks and their significance. The findings would appear to be counter to what one might intuitively expect. This begs the question: Why?

Further research is clearly required to establish the underlying causes and to establish an understanding of the degree of generality that can be applied to these findings. This is the goal of Project 2.

REPORT: PROJECT TWO

This chapter presents the second research project. The project examines the management of four risks identified in Project 1; two where the risk management was the most negligent, and two where it was the most excessive. The chapter follows a similar format to the previous one, with four sections. There is a section on theoretical position. Much of the literature reviewed in Project 1 is also relevant here. In addition, the role of culture and identity, organisational complexity, the collective mind and the need for a multi-paradigmatic approach to research are explored. The second section addresses the method of research undertaken. This project uses a case-based approach to explore each of the four risks. The results are presented in a section containing the four cases. The final part discusses the findings and is used to present three propositions which are tested in the final project.

1 Theoretical positioning

This section addresses the theoretical position of this project. Much of the literature that this project draws on has been reviewed in Chapter 2 and should be referred to, as it has been reviewed in Project 1. Part of the challenge of Project 2 is to examine the cases from multiple perspectives. This is not a common research approach (Schultz and Hatch, 1996; Brady and Hatch, 1992). It requires other areas be examined, in addition to risk behaviour and decision-making. These areas are partly methodological, such as the approach to complex organisational research, as well as exploring further Weick and Roberts's (1993) and Weick's (1998) theory of the collective mind.

The findings from Project 1 show that a traditional view of organisational or individual risk behaviour, based on the expectation that the level of risk mitigation will be positively related to the level of risk significance, does not always hold true. In the circumstances studied it is clear that this type of perspective does not explain the organisation's risk prioritisation and behaviour as observed in Project 1, and that if I am to find an explanation, or set of explanations, I need to look to other areas of the literature.

The first project allowed the components of risk (probability and mitigation) to be measured. It also measured the organisation's ability to mitigate those risks. This approach allowed the conclusion to be drawn that risk management was not rational in the traditional sense. This posed a problem: a strictly rational view of the world could not explain what was observed. Some cognitive theories can explain aspects of the observed risk behaviour in a specific instance, but none appeared to be effective in all situations. This problem is clearly what has driven some researchers to create integrated theories. However, even these theories may be incomplete. Before that speculation can be explored, it is important to understand what it is about organisational risk behaviour that requires answers from multiple perspectives.

The answer does not lie in risk management; it lies in organisational research. It is clear to almost everyone that organisations are large and complex. The complexity of organisations is a key contributor to failure within these organisations (Reason, 2000; Reason, 2002; Hänninen, 2000). The drivers for organisational complexity include technology and the evolving economic environment. Ultimately, the organisation's behaviour is the result of the behaviour of the individuals (Weick and Roberts, 1993).

It is easy to think of an organisation as a network where each person is a nodal point, all of which are interconnected via formal and informal links, which may be either direct or indirect. The way each node behaves is dependent on how the organisation as a whole behaves, but also upon the desires and perceptions of each individual. This is in essence how Weick and Roberts (1993) describe the way in which aircraft carriers operate. Theirs is not a unique view of organisations. Hogg and Terry (2000:121) describe organisations as:

> *"Internally structured groups that are located in [a] complex network of inter-group relations characterised by power, status and prestige differentials."*

They take this further by asserting that the need for social identity met by being part of an organisation can be so strong that it is central to the person's own self image. It reduces uncertainty about their place in the world, which this means it adds a degree of consistency to their perception of the world. As a result of this tight coupling between the individual and the organisation, just as the organisation's behaviour is altered by the behaviour of the individuals within it, so the individuals are altered by being part of the organisation.

To understand the organisational network fully, it is necessary to understand the role and impact of all possible stimuli in every possible combination. That is the challenge for the researcher. Organisations are complex networks, and each node (or person) represents a complex process of risk evaluation, perception and preference. The collective mind (Weick and Roberts, 1993) of the organisation is a complex network composed of complex networks. The target organisation has close to 100,000 employees. Predicting the organisational response to any given risk as it presents itself

requires the ability to understand the behaviour of every individual within the organisation.

The only response to this is to either give up or to produce models which explain behaviour in a simplified manner. To progress learning the latter was chosen, but it does carry with it the danger of simplifying down to a level that contributes nothing to understanding. Single determinant theories of risk behaviour, while valuable, are not sufficient to offer a workable understanding.

Schultz and Hatch argue the need to use all of the "paradigm diversity map" (Burrell and Morgan, 1979) in research. This approach has only attracted significant research focus in the last ten to fifteen years (Hogg and Terry, 2000), in the fields of multiple paradigms (Schultz and Hatch, 1996), complexity (LaPorte, 1975b; Tsoukas and Hatch, 2001) and searching for new ways of describing it (Hatch, 1998; Hatch and Weick, 1998; Weick, 1998; Hatch, 1999). This has also taken place in the area of risk behaviour. There is a weakness in trying to express the complexity of risk behaviour with a single determinant. This is implicit in some research (March 1988; Pablo et al., 1996), but is explicitly addressed by others (Sitkin and Pablo, 1992; Das and Teng, 2001b).

The original review of the literature focused upon risk and risk behaviour. It is useful to look a little beyond this to find other possible explanations for what is being observed. There are two other areas I wish to focus on. The first of these is decision-making. There is a suggestion that risk perception plays a more dominant role than risk propensity (Sitkin and Weingart, 1995). Of this, outcome history is the most significant determinant (Sitkin and Weingart, 1995). They put forward the concept of "domain career", which is a measure of how familiar one is with the given domain.

Arguing that an individual's risk propensity for the domain is set in early experiences of the domain, they find that it may become fixed over time. This is important because in this research we will see the organisation move outside the familiar operational domain. In this situation the organisation is familiar with the risks and so its propensity is already set. In other areas it is not familiar, and so the propensity is not fixed. This would explain the inconsistent risk propensity observed in both the individuals and the organisation. Another factor is the role of conflict and politics in decision-making. There is little direct evidence of this in my research project. However, an acquisition is fraught with opportunities for conflict, many identified by practitioner research (Pablo et al., 1996; Pritchett et al., 1997; Galpin and Herndon, 1999; Carter, 1999; Chevriere, 1999; Miller, 1999; Habeck et al., 2000; Tuesday, 2003; Robb, 2003; Cuneo, 2003). Politics can play a role in causing these, as well as being a tool to prevent and disarm conflicts (Sitkin and Bies, 1993). The organisations involved in this acquisition are very resource-rich, in terms of financial strength, capability and human resources. This is important during crisis situations (Weick, 1988; LaPorte, 1975a) in order to allow the organisation to adapt and create solutions to risks as required.

The final factor is culture. We have already examined the role of national culture (Douglas and Wildavsky, 1982) and organisational culture (Hatch, 1997). In separate pieces of research, Hatch and Schultz (1997) and Sims (2002) show that culture, identity and corporate image are both intertwined and interdependent. The image that the organisation projects is contextualised to suit its needs, while its culture can be different, and as was discussed earlier, the need for self-identity is influenced by the total culture, but also by the individuals within it (Hogg and Terry, 2000).

2 Methodology

This chapter describes the method of research followed for Project 2 and the reason for many of the decisions made while selecting the research method.

2.1 Preparatory steps before method design

At the end of the first project, I observed two characteristics pertaining to the risk list. Firstly, some of the risks identified were substantially less important than others. I refer to these later as the "trivial risks". My second observation was that the wording used to describe some of the risks was unclear, or was not a description of a risk, but rather the effect of the risk. This may have been beneficial from the point of view of conducting the fieldwork, as it probably made it easier for the participants to understand the meaning of the risks. However, as the fieldwork has been completed, it is not necessary to continue with these descriptions.

In response to this, the risk description data would benefit from being "cleaned". To do this I undertook the following two steps.

I examined each risk to see if it was "trivial" compared with the other risks. If it was, I removed it. The following risks were removed:

- Risk number 13, Control centre environment not comfortable
- Risk number 14, Food and drinks available to the control centre staff not sufficient; and
- Risk number 15, Amenity and hygiene facilities not suitable for control centre working.

I then checked the wording of each risk to see if the risk description could be improved. The original and modified text is shown in Appendix H.

2.2 Method selection and design

This section describes how and why I elected to use a case-based approach for this research. In addition, it describes how the analytical framework based on the Reconceptualized (Sitkin and Pablo, 1992) and Temporal (Das and Teng, 2001b) models was constructed.

The goal of this research is to explain why the four most outlying cases were managed in such an excessive or negligent manner. While there was a lot of interview and documentary data relating to these, I no longer had unrestricted access to people in the target organisation. My research design needed to reflect this. A Delphi study, as used in Project 1, would therefore not be appropriate here. In deciding how to answer the question, five basic approaches were considered – experimentation, survey, archival analysis, history and case study. Experimentation would require that I have some form of control over the events being observed, and as this was an event in contemporary history, this would not be possible. A survey was not appropriate either because direct access to the actors involved would not be available because I was no longer working for the acquiring firm. Archival analysis was a possibility as I had still access to the company records. The content of the interviews was a richer source of data, which should not be excluded. A historical analysis would not be appropriate for such a contemporary event either. I elected to use a case study approach because of the mix of archival and interview data available to me, and its suitability to answer the research question. The research examines four separate risks; because of this the research was

designed as a multi-case project, with one case study for each risk. This allowed for comparison and contrasts to be made between risks.

The cases are based on evidence drawn from a number of sources. The three primary sources are documentation, archival records and the interviews conducted in the first project. I have resisted using my own personal observations, because while they undoubtedly add context and some detail, my observations were not recorded at the time and might be prone to bias recollection. In addition, they could lead me to place too much emphasis on what I observed. It should also be noted that the interviews being used are the interviews from Project 1; they were not conducted specifically for this project.

Based on the literature reviewed, only two theoretical approaches seemed sufficiently comprehensive; either March's (1988) or Sitkin and Pablo's (1992) model could be used as an analytical framework, because only these included a significant number of risk determinants. It was necessary to select one to use as an analytical framework for this research. The model chosen needed to have clearly-defined risk determinants that could be used to illustrate reasons for the risk behaviour, while also being complete (containing all known risk determinants) and causal (showing how the presence or absence of a risk determinant would increase or decrease the level of risk behaviour).

From the research described in Project 1, and the review of other researchers' work in the theoretical positioning, a number of models based on single causal determinants were found, none of which were complete. In response to this I had to decide whether causality or completeness was the greater priority. I decided that completeness was more important. My reasoning for this was the wish to integrate many risk determinants. This would never be achieved without a high degree of

completeness. In addition, integrating many different causal models would have been very difficult because each model is inherently different and mostly incorporated in the integrated models, though it was necessary to incorporate the Temporal model into the analytical framework.

I had already identified three frameworks which were complete but not causal. These were the Reconceptualised model (Sitkin and Pablo, 1992) the Temporal model (Das and Teng, 2001b) and March's Taste and Rationality (1978). The Temporal model has an element of causality relating to the impact of temporality on risk behaviour, but it does not have any degree of detailed risk determinants, and so had to be discounted. It was more difficult to decide between the two remaining frameworks, so I selected a single risk and wrote a sample case using each framework as a model. From this I concluded that the Reconceptualised model would be of more use. The main factor in this decision was the fact that the Reconceptualised model divides itself into a number of clear risk determinants, which I found easier to work with than March's model.. In addition, the clearly defined determinants made it easy to present the data in a tabular format.

Because of these factors I felt that March's model would be more difficult to work with. In addition, I wanted include temporality. Including the Temporal model means that the analytical model is based on both the Reconceptualised and the Temporal Models.

The Reconceptualised model (Sitkin and Pablo, 1992) is comprehensive. It presents the various determinants of risk behaviour and suggests how they influence either risk perception or risk propensity. It does not address the influence of temporalities (Das and Teng, 2001b). The model of temporalities differs from the Reconceptualised

model in two important respects. The most obvious is the inclusion of consideration for the role of the temporal nature of the risk. The second is that the Temporal model offers a prediction of risk behaviour, while the Reconceptualised model does not. However, if the causality is removed from the Temporal model, what remains is very similar to the Reconceptualised model, and can be viewed below:

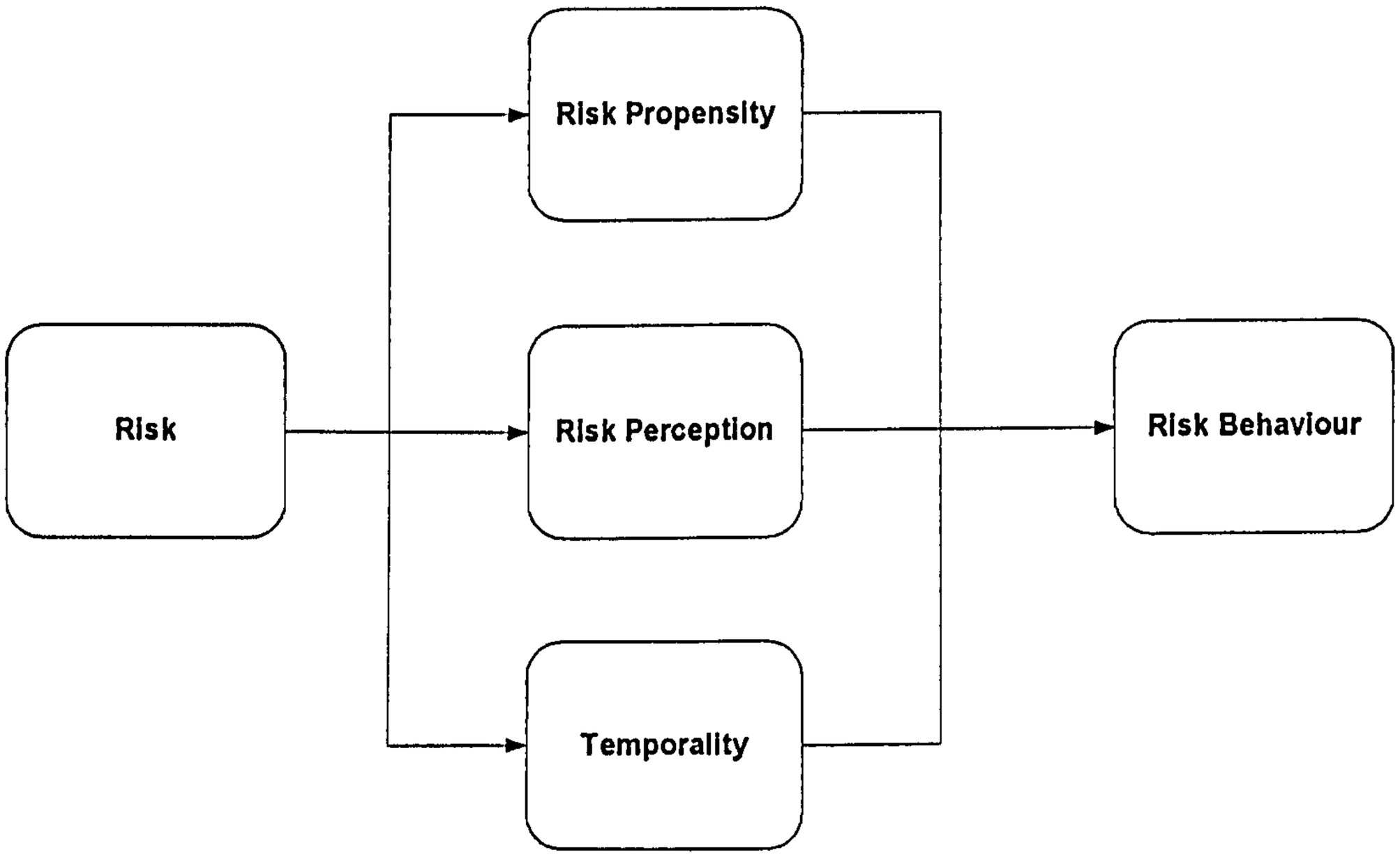

Figure 16 - The Temporal model presented in a similar format to the Reconceptualised model (Das and Teng, 2000b)

Most researchers (Tversky and Kahneman, 1973; The Royal Society, 1992) use a form of Systems model to describe the decision-making process. Typically, this is input (risk), process (perception/propensity modification) and output (behaviour). This is implicit in the Reconceptualised model.

Using the Reconceptualised model, the Temporal model and the Systems model, it is possible to illustrate the risk decision-making process below:

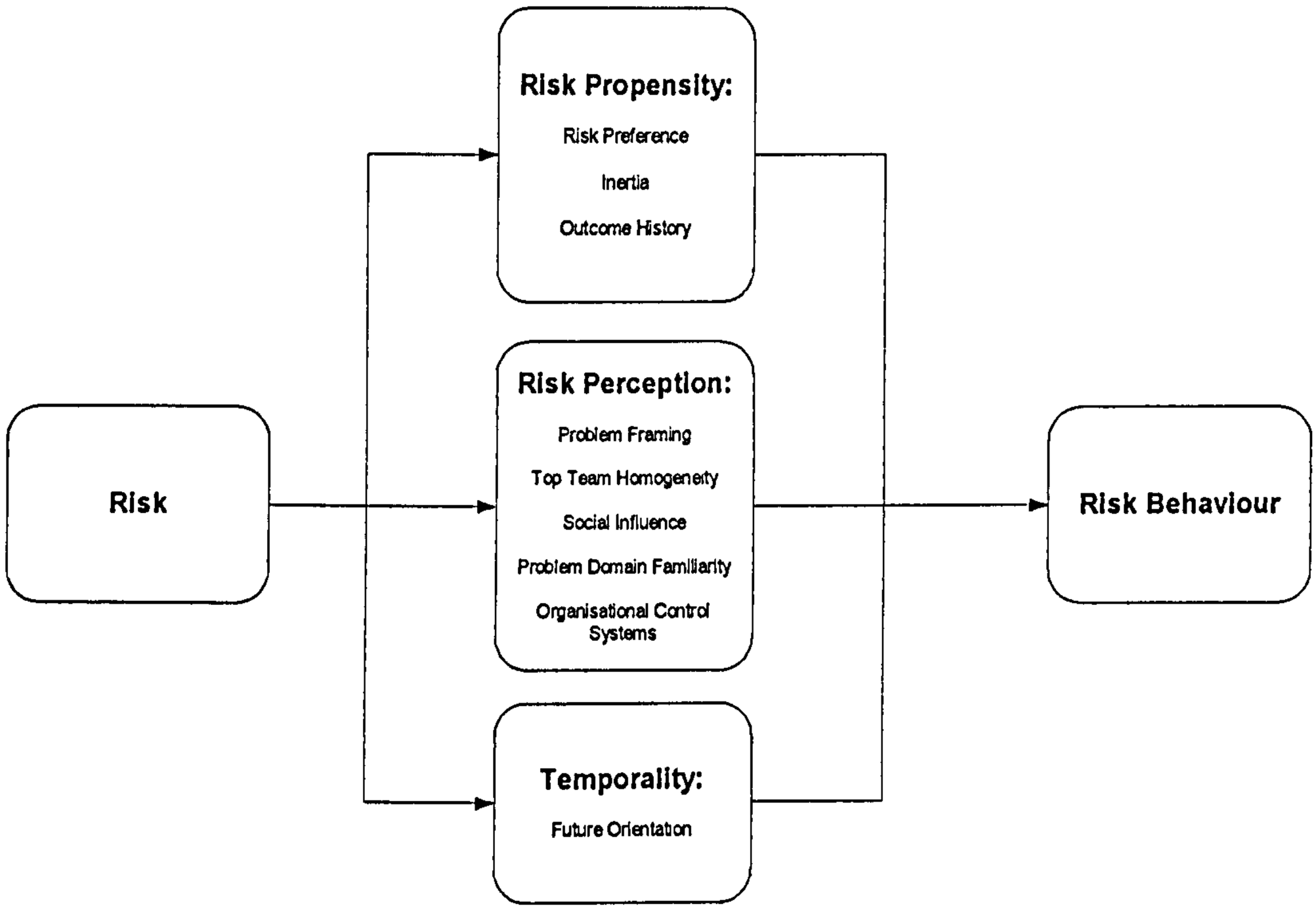

Figure 17 - Representing the combined models[4]

I will use this combined model of the risk decision-making process throughout the project.

2.3 Risk selection

The selection of risks is quite straightforward because of the prior data cleaning. I selected the three risks that were above the diagonal line and had the largest perpendicular distance from it, and the three risks that were placed beneath the diagonal line, and had the largest perpendicular distance from it. By doing this, I was able to select the three most excessive and three most negligent risks. When doing this

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[4] Based on a general systemic approach such as the Royal Society's, the Reconceptualized model and the temporal model.

I noted that risk 26 "Talented resource not fully utilised" has similar drivers to risk 24 "The organisation cannot maintain or motivate critical staff".

Using the results of the risk significance and mitigation obtained from the Delphi study in Project 1, four risks could be selected.

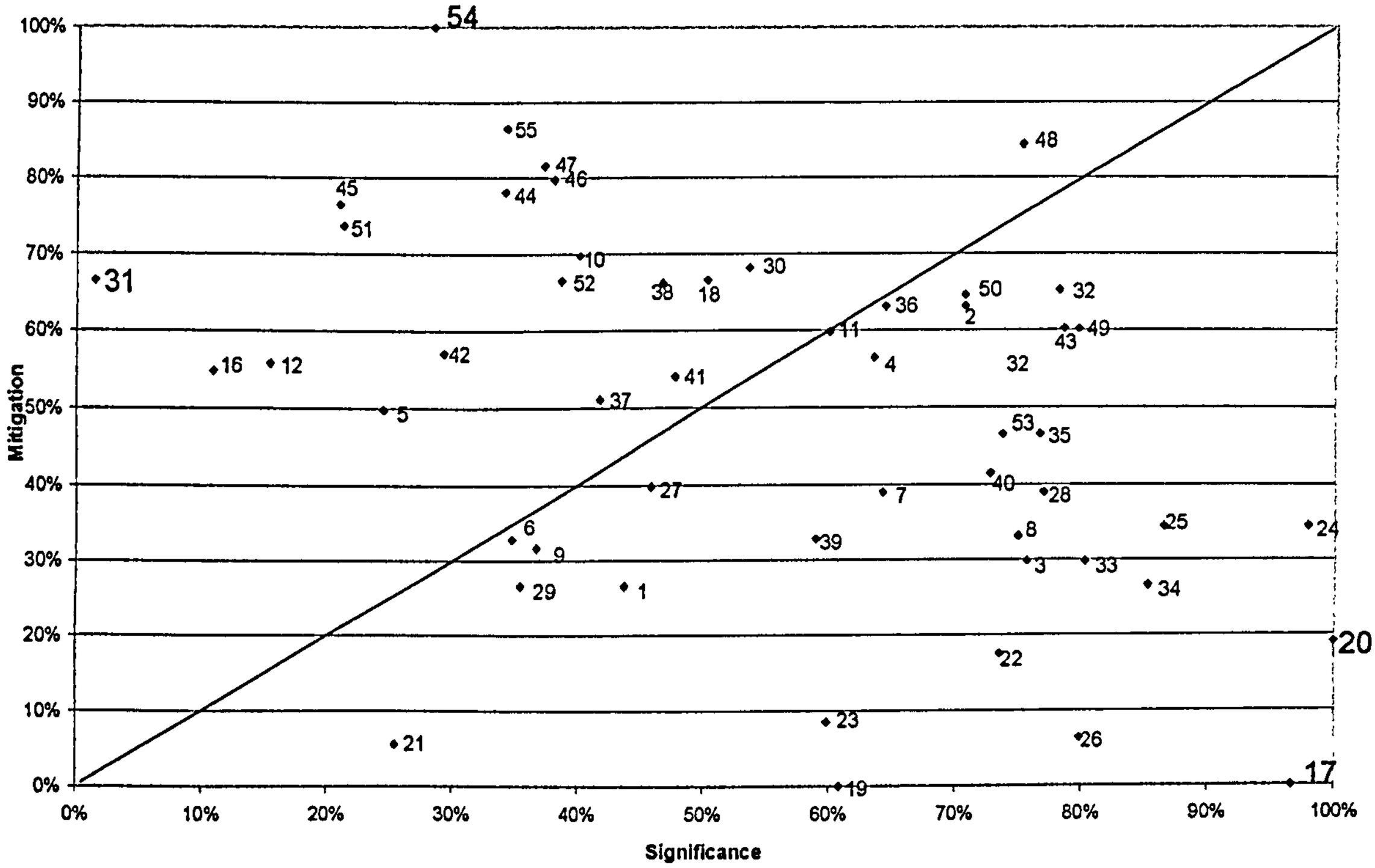

Figure 18 – Risk distribution showing the risks selected

Because this would provide little extra learning opportunity, I decided to address the two together and include risk 34 "Staff performance is compromised as they become 'burned out'."

The four risks selected for the case studies are listed below:

	Risk No.	Description
Excessive	54	Trading desks not aware of their positions at the start of change of control
	31	Control centre staff become complacent or fatigued due to being overly practiced
Negligent	17	Poor systems may be selected over better as a result of the need to rationalise technology quickly
	20	Management may focus on the "business" of the merger and not the human resources side of it

Table 17 - Risks selected

2.4 Writing the cases

Since I had an opportunity to "test" writing one of the cases, I was also able to try and find suitable formats for presenting the data. I created a template for the cases, which I found to be useful, and decided to write each case as follows:

- Title of the risk - with an introduction
- The nature of the risk – a description of the salient features of the risk
- Actions relating to the management of the risk – how the target organisation manages the risk
- Analysis and evidence – this was sub-divided by the risk determinants that were found to be salient, with extracts from interviews and documents as appropriate

- Areas not addressed or explained by the model – this discusses risk determinants that were found but which are not addressed directly by my framework

2.5 Results tabulation

At the end of the four cases determinants from the model and others found in the cases were presented in a tabular form.

2.6 Searching for common determinants

From these results it was possible to search the data to determine which risk determinants were present in both the excessively and negligently managed risks.

2.7 Propose reasons for behaviour

Based upon these findings it was then possible to suggest a series of propositions which would explain the behaviour observed in the target organisation.

2.8 The overall design

The overall design and flow of my method is illustrated in the following figure:

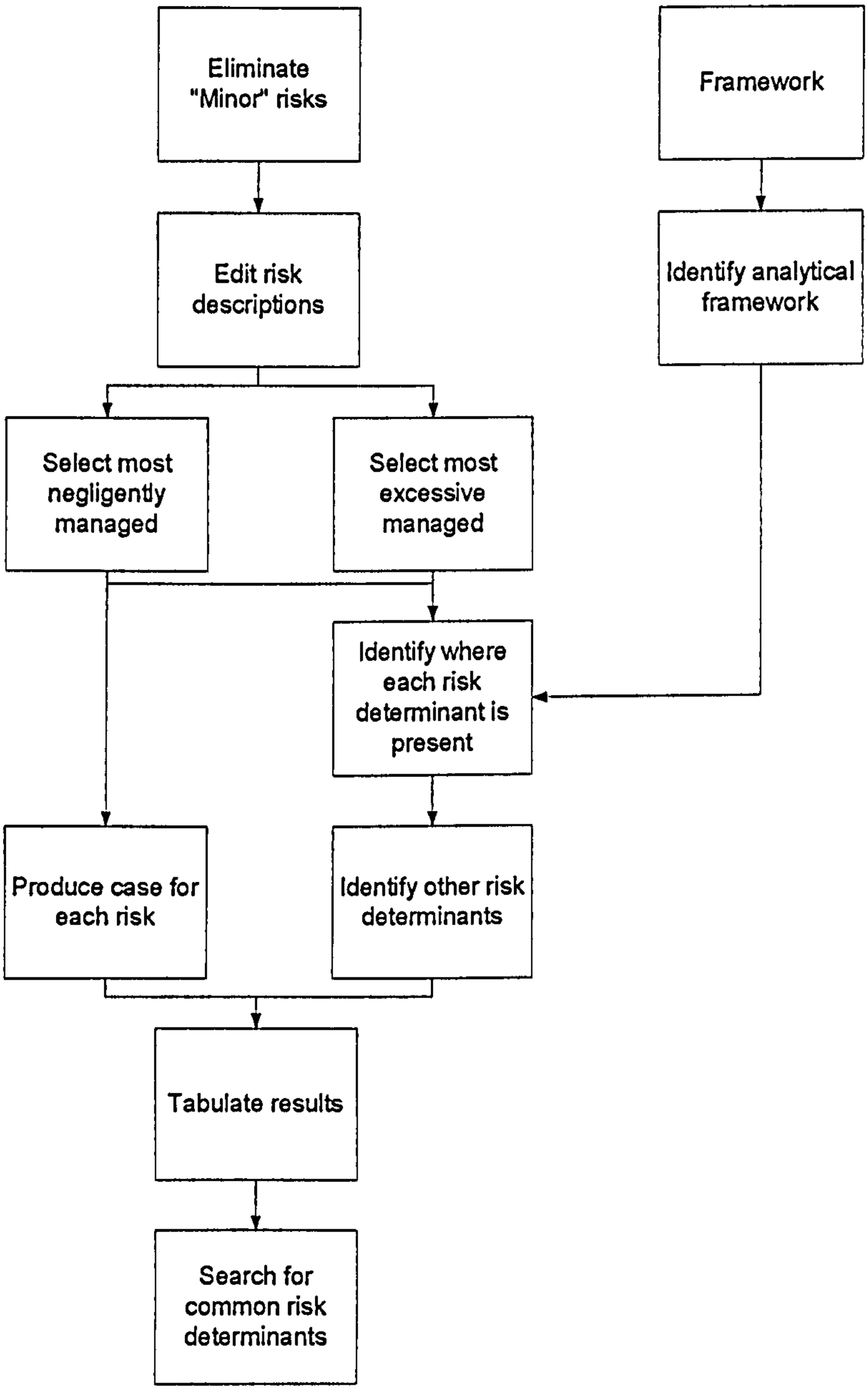

Figure 19 - Method of research for Project 2

2.9 Potential weaknesses with the research design

The case study is a commonly used method of empirical research (Yin, 1994). At the same time, it has to be recognised that not all researchers approve of it. Yin describes their feelings toward the case method as "distain" (Yin, 1994:9). He identifies three areas for concern; the potential for lack of academic rigour on the part of the

researcher, the limited opportunity for generalisation, and the fact that case studies can be very time consuming. Each of these can be overcome (Yin, 1994).

The need for rigour applies to all academic work, but there are probably greater opportunities in case-based research for the researcher to be influenced by various factors which may bias the work. The bias that can impact the case study can just as easily impact other forms of research such as experimentation (Rosenthal, 1966), surveys (Sudman and Bradburn, 1982) and historical analysis (Gottschalk, 1968). Like Yin, I recognise that the case researcher has to work particularly hard to make sure that bias does not enter into the work.

Generalising from a single case study is very difficult. The same can be said of experimental research. General findings are usually not drawn from single experiments either. In this research I am undertaking four case studies. These provide a variety of perspectives which can allow for a limited generalisation about the context of the research.

The third concern is that case studies take too long, but this is not necessarily true (Yin, 1994). In this research, because I am revisiting field work, that allows me to manage the duration of the project, which also fits well with the DBA structure.

3 Results

This section presents the results of the research. The results are presented as a series of case studies. Each case examines one of the four outlying risks and is presented in a similar format. The case is divided into the following sections:

- A description of the risk

- How important the risk is
- How the risk was managed
- An explanation as to why the risk was managed in an excessive or negligent manner, using the analytical framework for the project; and
- Any areas that are not addressed by the analytical framework.

3.1 Case A - Risk No. 54: Trading desks are not aware of their positions at the start of change of control

This section explores risk number 54.

3.1.1 The risk

The risk being studied is that "Trading desks are not aware of their positions at the start of change of control". This means that the trading desks do not know the exact positions (inventory of assets and liability and their values) that they hold.

3.1.2 How important was it?

The bank being acquired and the acquiring bank had substantial trading interests. There was relatively little geographical overlap in the markets in which the two banks were strong, with the exception of London. These trading activities are organised around businesses within the various market areas, such as debt, bonds and equities. These are organised around "trading desks". A desk can range from a single trader for specialised instruments, often referred to as "exotics", and small markets, through to a large team, dealing in large volume business, or a business where the bank is a key player. A famous example of this was the Mortgage Backed Securities traders at Solomon Brothers in the 1980s (Lewis, 1990).

The desks make their money through buying, selling and holding financial instruments. A financial instrument is a generic name for a variety of financial products, including equity (stocks and shares) and bonds (corporate and sovereign debt).

These trading desks tend to operate in two ways. They buy and sell on behalf of clients (brokerage) and charge a commission, or they trade on behalf of the bank

(proprietary trading). Most desks do both to varying degrees. In this case, the acquiring bank was mostly brokerage, while the acquired bank, although mostly brokerage, had a large proprietary trading base as well. Proprietary trading is riskier because the bank is exposed to market risk, counter party risk, operational risk and credit risk, but offers the potential of substantial rewards. Brokerage is transacted on behalf of clients and so eliminates the market risk. The opportunity for gain is from the charge of transacting the trade.

In an acquisition scenario the acquiring bank will wish to know the exact trading position of the acquired firm at the start of the acquisition (change of control) and at the end of the change of control process. These are important from a legal and a control perspective.

From a legal position the acquired bank needs to know the position at the start of the CoC to enable it to be aware of those profits and losses which were incurred under its control. This influences corporation tax liability as well as regulatory financial requirements, in addition to protecting their shareholders as a final step of due diligence.

From a control perspective this serves two purposes. Firstly, knowing the starting position and comparing the ending position means that the acquirer can account for all acquired positions and any movements that have taken place. The opening position, plus or minus any movements, should equal the closing position. Secondly, this is the last opportunity to identify any unacceptable exposures that may be on the acquired bank's books. It is not impossible to imagine a disaffected employee trying to place the acquired bank in a difficult trading position in response to the merger. From a

financial control perspective both the acquired and acquirer must be satisfied that they know the positions being taken over and that they also agree on their value.

In a regular merger, or a partial acquisition, where part of one business is being acquired from another, this financial control activity takes on an additional importance. The valuation of the positions will have to be "paid for" and so it becomes an asset or liability to be transferred.

Although this is quite an important risk, it is one that the firms are well placed to address.

3.1.3 How was the risk managed?

At the start of the acquisition process, the bank being acquired had a merger management team which, less than 18 months earlier, had executed one of the largest acquisitions in European financial history. Most of this team was mobilised as before. The most significant difference is that the overall project steering committee was reconstituted to reflect the importance of the acquiring firm.

Because of the need to make rapid progress, the project management team decided to reuse as much information and processes as possible from the previous acquisition. In terms of managing the change of control (CoC) period, the team used the previous plans [DOC01B; DOC06C] and documents, such as templates [DOC02B; DOC10C]. The planning was processed around the shared corporate functions and the business streams. In addition, it divided the CoC [DOC06C] into steps, each of which acted as a control gate for progressing to the next phase. Each of these gates had a tightly controlled process of physical sign-offs that needed to be completed before the whole

organisation progressed to the next stage. Failure to receive a required sign-off would delay, and potentially halt the CoC process.

The first of these steps was that each area had to confirm that it was operationally ready to begin the CoC process. The second step was for the businesses to agree the content and value of all positions. Once this was done satisfactorily the two firms could legally merge. The legal execution of the merger is the point at which the merger is irrevocable; it is the "point of no return".

Considering the importance of the merger process, one would expect the knowledge of traders' positions to be rated more significantly. This apparent anomaly can be partly explained by considering the real impact and probability of the risk.

The worst impact would be if the positions were not valued correctly and the acquiring bank became exposed to a significant financial loss; large enough to damage the future opportunities of the bank, or worse, to lead to corporate failure. However, that would require the position management and valuation process controls to fail, and this is unlikely. The failure would have to happen to the same extent in both organisations because of the firms' valuing the positions independently. Secondly, both organisations perform this set of tasks every single trading day, so it is a core competency in which they are well practised.

Another way in which the position tracking could fail would be through an error that is not of a material size, such as mis-pricing a single equity. Such an error would have little material impact overall for the merger. While this is more likely, it is not very significant because of the low materiality.

The final way in which traders' positions could be an issue would be if technology processes were to fail in such a way as to simply delay the valuation of positions, and thus the CoC might run out of time. This could happen, but both banks would have considerable business continuity plans in place. One interviewee cited the high degree of confidence they had in the standard business continuity plans [DOC04C], plus the extra contingency [DOC09C] that was already in place. In addition, if traders do not know their positions, it would be a risk to the standing of the bank. It would probably also impact morale and confidence around the merger.

A description from one interviewee describes how important a successful merger integration was:

> *"There was a market perception of [merger] integration failure. Both [chairmen were] on record with a specific date, which suggests the process would complete in record time." [Inv A]*

The impact of a failure was commented upon by a number of interviewees:

> *"If missed [with] no operational risk or input, but perception of failure would signify and strengthen the view that the value of the merger not being fully appreciated and [the merger] not fully necessary" [Inv A]*

> *"The success of the change of control sets the tone for the whole merger" [Inv F]*

> *"[There was a] Market perception of the integration failing; the board had committed to a specific date "in record time" – if (the) date (was) missed (there was) no real operational risk, but perception of failure would have been very significant since the perception of merger was not unanimous [many thought it was a] "fool hardy" commitment" [Inv E]*

3.1.4 Why the risk was managed in an excessive manner

This section presents the project data and analyses it using the analytical model and framework. It illustrates why it was managed in an excessive manner and how the future orientation contributed toward negligent behaviour.

Risk Preference - The exact nature of risk preference in individuals is not addressed directly in my research or in any of the documentation I found. However, there is evidence of certain traits of risk behaviour across the combined organisation. One interviewee described the acquiring bank's culture as:

> *"[Acquiring bank] were perceived as "cowboys", they would hire whole teams from other banks for millions of dollars, and then they [the teams] would leave a few years later" [Inv C]*

The interviewee did, however, also say that:

> *"I think the environment (in Bank C[5]) had settled down by the time the merger happened" [Inv C]*

These sorts of statements would indicate that prior to the merger there was a tolerance for risk that was generally perceived as higher than would be the case in many banks in the industry.

Risk management is also part of the culture of the organisation. There are large organisational areas designed to help the firm to manage it. The main ones are:

- Credit risk department

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[5] Bank A was acquired by Bank B (now the acquired bank) a year earlier

- Market risk department
- Settlement risk
- Regulatory compliance; and
- Internal audit.

Each of these departments focuses on different aspects of the risks that the firm faces.

The first two, credit and market risk, play a day-to-day role in the business of the firm and impact business decision-making at a level which influences the position the firm is able to take in the financial market.

At the same time, the organisation's manner of dealing with risk was consistent, if not apparently rational. Settlement and similar risks were given a high degree of attention, while at the same time, people-related risks were not.

Looking at various pieces of data produced for the merger, it appears that there is an over-arching risk and issue management process across the business lines. This is embodied in the tools used in the control process [DOC05C]. Within the business lines the risk and issue processes are supported by similar process and documents [DOC02C; DOC10C]. Also, each area was asked to produce a business plan, the template [DOC10C] for which contained a section on risks and how they might be mitigated.

Perhaps the difference with the settlement process and some of the "softer", non-business process-related risks is that there were specific detailed plans to address what would happen if the risk occurred.

Based on the interviews and my own experience I would say that the firm was perceived as being inclined toward risky behaviour by its industry peers, who would

perceive themselves as relatively risk averse. But there is no evidence to suggest that the acquirer was more risk-seeking than general firms in Europe or the US.

Inertia - There is no direct evidence of either firm exhibiting any particular tendency in terms of risk inertia. However, we do know that the acquiring bank was considered to be "cowboys". The failure of an earlier acquisition and the high profile fraud case that followed would add to this perception. Based on this it is possible that they would exhibit a tendency toward risk behaviour.

The firm was certainly more inclined toward risk than its peers. However, because of the risk profile of its peers, I would consider the impact of risk inertia to be neutral.

Outcome history - In relation to the risk posed by traders not knowing their positions, both banks had enough experience to demonstrate an outcome history, which may have impacted their behaviour in this circumstance.

The processes used to manage this particular risk exist in the normal course of events and are both quantifiable and prescriptive. The exact same process and responses to its outcome applied to this CoC period. The activities, as documented in the CoC plan, were identical to those that were used in day-to-day operations (as far as I could tell based on my expertise) and were similar to industry practice as described in *After the trade is made* (Weiss, 1993).

Based on the evidence of this risk, there was inertia both in terms of how the risk was managed, and how management responded to it.

In addressing the risks to the settlement process there would have been a history of successful outcomes, compared with less familiar risks such as the people-related ones.

It should be remembered that this process is followed every day by the bank, and that by following it, it has have avoided negative outcomes. Interviewees described the impact of failure as follows:

> *"Setting the tone for the whole merger" [Inv C]*

> *"I think it depends on what type of failure. If it was a complete and absolute disaster, half of it had worked and have of it hadn't there would have been huge remediation. You would even have to stop trading to stabilise your books and records and stuff." [Inv B]*

While highly successful in managing the risk, this could lead the organisation to be negligent in managing the risk. However, in this case, there was such a strong focus on the impact of the risk that the outcome history would actually lead them toward excessive management of the risk.

Problem Framing - There is little evidence of problem framing of this risk. However, in the plans [DOC07C] there is reference to the need to check the traders' positions. This indicates negative problem framing. Also, not knowing the financial position of the firm would be considered very serious, as the interview quotation above would indicate.

Top Management Team Homogeneity - There is no specific evidence of the role of top team homogeneity relating to this risk, although a high degree of homogeneity exists in many demographic domains. These include race, age and gender. At the most senior levels, with the exception of one board member, all were male, European, Caucasian and aged between 40 and 60 [DOC03B].

Even in our sample group of 14 respondents on the same parameters there are similar high degrees of homogeneity:

Nationality:	European	13
Gender:	Male	11
Race:	Caucasian	11
Age[6]**:**	20-29 years	2
Age:	30-39 years	7
Age:	40+ years	5

Table 18- Respondents' demographics

Social Influence - There were no direct references or evidence relating to the role of social influence relating the management of the traders' position risk.

Problem Domain Familiarity - There is a very high degree of problem domain familiarity relating to this risk, as the organisation faces these risks every day. It is a fundamental part of the businesses process. One interviewee posed the question:

> *"If we couldn't get this right, what could we get right?" [Inv D]*

As has been seen already, others felt that it was a key part of the CoC:

> *"I think it depends on what type of failure. If it was a complete and absolute disaster, half of it had worked and have of it hadn't there would have been huge remediation. You would even have to stop trading to stabilise your books and records and stuff." [Inv B]*

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[6] The age figures are approximations only

To stop trading would be an almost unimaginable setback. There are also other significant related risks. In a market that is changing rapidly a lack of clarity puts the firm at a considerable disadvantage.

> *"You must make sure traders know their positions if there is volatility in the market. [If so] we know how to manage that risk" [Inv C]*

Also, failure to know the financial position can lead to other errors, which would damage reputation and incur fines:

> *"You need to know which transactions need to be settled, so it needs to be clear so that*
>
> *1. You don't make mistakes*
>
> *2. There are no mis-matches [In trades that are back to back, such as a swap of equity]*
>
> *3. Manage client payments [settlement]" [Inv C]*

While there was a high degree of domain familiarity, it wasn't quite "business as usual", as it was necessary to book trades on specific days so that they could be easily identified in the books and records. This was not usual practice. There was also a lack of clarity around which dates were appropriate:

> *"When do you book your trades on, the end of Friday, or the Saturday? And then the legal and tax impacts of that. Some of these issues came out of the woodwork desperately late" [Inv B]*

The high degree of problem domain familiarity could contribute to negligent behaviour because of the organisation becoming complacent. However, in this instance it

resulted in the firm being extra vigilant because they understood how to manage it, and understood the impact, which would cause it more excessive risk management behaviour.

Operational Control Systems - Operational control systems played a particularly important role in the case of this risk. The acquired and acquiring firms had stringent controls around trade positions and other similar parts of the trading operation, such as settlement and funding. As discussed in earlier documents, there is a high degree of information content in these processes, which would indicate the need for rigorous controls and processes (Porter, 1985). There is also a significant degree of documentary evidence as to the nature of the controls that were in place, both at a macro and micro level.

In addition to the controls in place for this specific risk, extra controls had been used on an earlier acquisition and the EMU programme conversion.

> *"Bank A's [acquisition] success meant it [the control process] was a tried and tested process. Bank A cutover and EMU (conversion) control meant there was a good competency in managing that type of event." [Inv A]*

> *"There were no major issues. The process was well defined. .... There was a good effort to train people" [Inv D]*

At the highest level each business line and functional area has to plan a series of milestones. For the Foreign Exchange (FX) financial control organisation of the acquiring bank, these were listed in the integration plan and hourly status reports. An extract, with certain names changed, is presented here.

- All pre-COC tasks complete
- Close on-line day
- Close external interfaces
- Start end of day processing
- Go or fallback to pre-EoD[7] backup
- Core FX general ledger processing complete
- Ready to process XXX trades
- XXX acquired bank trades processed
- Begin trade reconciliation process in YYY
- Trade reconciliation processing complete
- FX signs off reconciliation
- FX general ledger EoD processing complete
- Cash processing systems CoC complete; and
- FX general ledger ready for on-line day.

Each of these points has a physical sign-off sheet, which was faxed and then sent via internal mail to the control centre. The control centre manual prohibits the staff from accepting a verbal notification as proof of completion of any of these tasks. Once the documentation was received, the plans and status were updated and reported accordingly. Using the control software the status reports were updated automatically from the activity tracking system.

This process ensured that at a high level each business area was controlled. Because these sign-off sheets had to bear the signature of the head of that business area or a

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[7] EoD = End of Day

previously specified delegate (as this was a 24 hour a day operation it was necessary to delegate some activities), there was a degree of personal accountability.

These procedures are described in the CoC plan [DOC06C] and the command centre handbook [DOC19C].

The traders have various technical and manual processes in place to ensure that they know their positions. In the normal course of events, this work is done during the day when the traders are operating, and then overnight so that the traders know their exact position at the start of the day. The trading areas were required to make two important changes to their normal operations during the CoC process. Firstly they were required to sign off their positions in person immediately after the close of the trading day. They were again required to do so before the CoC could be considered complete. This is shown in the CoC plan [DOC06C], the planning templates, and plans for the trading areas. In the event that these tasks could not be completed in the time allocated, plus an agreed buffer, there was a PONR (Point Of No Return) which automatically required the invocation of the CoC Business Continuity [DOC09C] plan.

There was a high degree of confidence in these controls among the interviewees:

> *"There were many small risks … did not perceive any special risk with the control centres piece" [Inv A]*

Future Orientation - The key temporal impact in this risk is related to the short-term impact of decisions. Earlier I listed some of the teams related to the management of this risk. For this one activity there are many tasks to be executed over the weekend. This illustrates the fluidity of the rate of progress involved.

The impact of a mistake in the reporting of positions could cause the bank to be unsure about which sets of records were correct and which were not. This would lead to the inability of the bank to trade; something that no major bank had experienced, even after the events of September 11th, 2001.

3.1.5 Areas not addressed or explained by the model

Much of the behaviour observed in the management of this risk can be explained using the theories that constitute the Reconceptualised model.

There are a few areas that are not fully explained by this model that deserve to be explored further, outside the framework. These are:

The role of culture as an influence on risk behaviour because of the impact of the top team's homogeneity, and the firm's social norms.

The impact of industry regulation and structure as contributors to the organisation controls.

Dominant National Culture - One dimension of the high degree of top team homogeneity is the national culture. Swiss and German nationalities dominate the board and senior management of the acquiring bank. The role of culture is not addressed in the Reconceptualised model, except for the notion of personal disposition. However, culture is an influence on risk tolerance and risk behaviour (Douglas and Wildavsky, 1982). Dominant cultures have low tolerance for ambiguity and uncertainty (Hofstede, 1980). This can be seen by the way in which this risk was managed. The nature of the risk made it possible to use procedures in its management,

which is what was done. The existing day-to-day controls were used and augmented, with the sign-off and other control procedures in place.

Industry Structure and Regulation - The investment banking industry is a highly regulated area. Every country in which both banks operate had one or more regulatory bodies. The regulation requires organisations to protect investors and the general market from various risks. This is achieved through surveillance (and the reporting of that surveillance) and the withholding of capital from the marketplace and holding that capital as a reserve. To prove this, firms must report both their financial and non-financial (such as exposure to a single client or percentage exposure to a single company) position.

These types of regulatory requirements mandate the necessary control mechanisms be in place to deliver high levels of accuracy and assuredness of necessary controls. In delivering that information and control it would appear possible that the regulations would influence actual operational behaviour.

The structure of the merger process, and in particular, the very existence of the CoC process, is a direct result of the regulatory environment of the banking sector. The general regulatory legislation (*The City Code on Mergers & Acquisitions*) requires a high degree of separation between the two firms. However, the regulatory reporting requirements of the FSA requires that reporting requirements be met immediately following the CoC. This results in a high degree of co-operation between the two firms before the CoC in order to achieve the integration required.

Therefore, it is likely that the regulatory environment, which is a result of and a factor in the industry's structure, influenced the organisational control structure. However,

because of the close correlation between the regulated nature of control and the dominant national culture's natural tendency toward control and low uncertainty in both firms (and in particular, in the acquiring bank), it seems that they and their inter-relationship is a factor in the risk behaviour observed.

3.1.6 Summary

This risk is one that the whole trading side of any bank faces every day. There is an ability to accept failure within defined parameters, but this equates to a financial loss. Even the normal levels of acceptability were not applicable with the degree of extra control and vigilance in place. Many of the determinants contributed to the excessive management observed. These are summarised in the table below:

	Risk determinant	Observed in this case	Expected behaviour
Risk Propensity	Risk preference	Risk averse	Excessive
	Inertia	Neutral	Neutral
	Outcome history	Positive	Excessive
Risk Perception	Problem framing	Positive	Excessive
	Top team homogeneity	Homogeneous	Excessive
	Social influence	Risk averse	Excessive
	Problem domain familiarity	High familiarity	Excessive
	Organisational control systems –		
	Presence	Yes	Excessive
	Effectiveness	Yes	Excessive
	Formality	Formal	Excessive
Temporality	Future orientation	Short-term	Negligent
Determinants not included in the model	Dominant national culture	Excessive	N/A
	Industry specific regulation	Excessive	N/A

Table 19 - Case 'A' Risk determinants summary

3.2 Case B – Risk No. 31: Control centre staff are complacent or fatigued due to being overly practised

This section explores risk number 31.

3.2.1 The risk

During the change of control (CoC) period there is a specific control structure in place to monitor, report upon and direct progress of the CoC. Each business area has its own control structure that reports to the merger control centre. This overall control centre liases with senior management, who are located in their own centre. This is described in the acquisition change of control plan [DOC06C] and the acquisition CoC business continuity plan [DOC09C].

In the period preceding the CoC, the control centre staff are frequently tested in accordance with the pre-merger plan [DOC11C]. In addition, the control centre was largely staffed by people who had experience of working in this role during previous acquisitions or similar events. The team was well practised, having completed four successful practice runs, called "dress rehearsals" [DOC12C; DOC15C]. The risk is that the teams will either become complacent because the dress rehearsal weekends were all so successful, or that they will become exhausted as a result of completing so many within the space of two months [DOC11C].

3.2.2 How important was this risk?

This is an important risk because of the role played by the control centre staff in the change of control. As we shall see, in spite of its importance, the decision to be taken had to consider the whole organisation, and not only the control centre staff.

As the control staff are the key and constitute the formal link between senior management and the organisation, efficient and effective operation is important for communications and the provision of reporting and management information.

The significance of the control centre is illustrated by the number of risks that specifically relate to it. These include risks number 40 and 41, which relate to change of control reporting lines being bypassed and merger progress not being reported "down" the organisation. Because of this communications role it is important that the control centre functions at a high level. Having said that, in the overall scoring of the risk associated with this case, it scored only 2% for significance, which made it the 54th most significant out of the 55 risks rated in Project 1. Paradoxically, it was rated as 12th in terms of mitigation, which would place it in the upper quartile.

It is certainly possible to believe that there was a high degree of confidence in the control centre team and its operation. The interviews illustrated this:

> *"There were many small risks ... (but we) did not perceive any special risk with the control centre's piece" [Inv A]*

The failure of the control centre would result in the breakdown of communications and co-ordination of the change of control process at the point where the various business areas are co-ordinated by and reporting to senior management. However, there were formal business continuity plans [DOC09C] to address this, and the senior management team did on a number of occasions bypass the formal control channels. One interviewee commented that:

> *"So much was expected in a short time .... They (senior management team) would bypass the control centre" [Inv K]*

It was unlikely that the control would fail completely. The more realistic risk would revolve around a failure in the co-ordination of a series of tasks that are time and order sensitive. The most likely scenario might be to allow a computer batch to run when all of the necessary inputs were not available. If this happened, it would be necessary to stop the computer operation, reverse what had been done, and start the operation again. This would result in the loss of time, which would be consequential as time is critical. This would be similar to risk number 18, "The volume of transactions to be processed (transferred) during the change of control may require more time than is available in the CoC period" , which scored similarly.

If the control centre failed it could lead to a failure of the CoC process, which would have a very high significance. Because of this, this is an important risk. At the same time it is possible that management would be able to manage the key elements of the merger, if necessary. More importantly, it is clear that the CoC took a "back seat" position in relation to the concerns of other areas, so while important, it is clearly not paramount.

3.2.3 How was it managed

The decision as to how many dress rehearsals needed to be performed was taken from the perspective of the whole merger, and not the control centre component. Any dress rehearsal would require the control centre. Therefore, the decision as to the number required would be taken without direct reference to the risk presented by this risk.

The management of this risk was facilitated by a number of factors:

- The team was experienced

- The team was practised
- There were continuity plans in place; and
- The decision as to how many dress rehearsals were required.

An examination of the staffing rota for this change of control [DOC11C] and that of the previous merger [DOC02B] shows a high degree of similarity in the names of those present. This shows that the experience gathered in one merger was being re-used in the second. Considering that these are rare events, it is a significant benefit to be able to have the same staff available.

Because of their experience and the number of dress rehearsals (four) [DOC11C]-[DOC15C] the staff were well trained. However, that may not have mitigated against complacency.

The acquiring bank had a business continuity plan [DOC09C] in place to deal with the extraordinary processes and controls of the merger. This included the control centre.

3.2.4 Reasons as to why the risk was managed in an excessive manner.

Most of the risk determinants would lead one to expect this risk to be managed in an excessive manner. This section highlights this, and how some aspects of the control structure could have influenced negligent behaviour. A number of the risk determinants are constant for all cases. These are risk preference, inertia, top team homogeneity and social influence. These will not be discussed in this case or in cases "C" and "D" as it would only be repetition.

Outcome History - The risk of control centre staff being over practised or complacent is one that the organisation faces with each dress rehearsal for the merger, taking into account the previous merger and also the Euro conversion process six months earlier. In each of these dress rehearsals there was no indication of failure of the CoC control centre.

The decision relating to this risk had been faced on a number of occasions before, and in each case, the control centre did not fail. This would indicate that the decision to hold the final dress rehearsal was probably taken with a high level of confidence because of the outcome history.

However, in reality the decision was being made with a greater degree of focus being placed on the larger organisation than on the control centre. Therefore, the firm was managing the risk in an excessive or balanced manner from an overall firm context, but negligently from the control centre context.

Problem Framing - There is no specific evidence relating to the framing of the problem at the time it was addressed. However, when it was raised in the interviews, the context and wording was negative. More importantly, however, is the fact that the impact on the control centre is clearly secondary to the whole of the firm in this context. Even though the framing itself may be negative, it is probably positive compared with the framing of risks to the whole organisation. This could explain excessive behaviour in relation to the risk.

Problem Domain Familiarity - There is a high degree of problem domain familiarity in dealing with this risk. This is because of the number of times that there had been dress

rehearsal weekends. This high degree of familiarity allows management to understand the risk, and thus focus on managing it.

Organisational Control System - There was no specific evidence relating to the control system surrounding the way in which the decision was taken. There was clearly a commitment to rapid execution. If you consider that a dress rehearsal could not take place without the CoC command centre in operation, it would seem unlikely that the decision would be taken locally to the command centre. Therefore the interest of the whole organisation would have been considered, and not just the CoC control centre. The general lack of controls would be expected to lead toward negligent behaviour.

Future Orientation - The impact of the risk associated with this case would be experienced at the CoC or dress rehearsal weekend. The timing of the risk is intermediate compared with most of those addressed elsewhere in the research. It does not have an immediate impact, but the "go, no-go" decision is taken days in advance of when it can have an impact. At the same time, that is not a very long period either. The effect of the decision relating to the final dress rehearsal weekend might not have an impact until the CoC weekend. The Temporal model does not allow for intermediate time frames. Because of this I have considered this to be near-term, which would cause the firm to act in a more risky manner, i.e. to treat the risk element in an excessive manner. Based on the Temporal model, this would lead to "low risk", or excessive behaviour.

3.2.5 Summary

This section includes Table 20 - Case "B" Risk determinants. It presents a summary of the risk determinants and the role they played in the excessive management of this risk.

	Risk Determinant	Observed in this case	Expected behaviour
Risk Propensity	Risk preference	Risk averse	Excessive
	Inertia	Neutral	Neutral
	Outcome history	Positive	Excessive
Risk Perception	Problem framing	Positive	Excessive
	Top team homogeneity	Homogeneous	Excessive
	Social influence	Risk averse	Excessive
	Problem domain familiarity	High familiarity	Excessive
	Organisational control systems – Presence Effectiveness Formality	 None Yes Informal	 Negligent Excessive Negligent
Temporality	Future orientation	Short-term	Excessive

Table 20 - Case "B" Risk determinants

3.3 Case C – Risk No. 17: Poor systems may be selected over better ones as a result of the need to quickly rationalise technology

This section explores risk number 17.

3.3.1 The risk

When the two banks merge there is obviously an issue with duplicated systems. Where there is overlap in business function there will be an overlap in technical systems capability. It is not desirable that two sets of systems are maintained because there is an economic cost and operational risk in having this duplication. It is expensive in terms of data centre capacity, human capacity and complexity, which contributes to systemic risk. This situation leads the acquiring organisation to rationalise the systems environment in as rapid and controlled a manner as possible. One of the stated objectives of the merger integration is:

> *"SPEED.*
>
> *The sooner the integration is completed, the more quickly the benefit of the merger will be realised and a stable state achieved"* [DOC18C]

There are strategic considerations to this, such as technologies used, hardware platform and skills availability. The concern is that in this rationalisation process there is not an optimal selection process. This would result in the attainment of a sub-optimal process and the loss of key skills.

3.3.2 How important was this risk?

This is an important risk as it involves the rationalisation of overlapping systems and controls. It is also important as it involves the disposal of assets and might limit the capabilities of the firm in the future.

Decisions around technology strategy are clearly important. Although banks do not publish their technology expenditure levels, they are clearly a significant part of total expenditure. An equivalent sized American investment bank spent about US$2.2 billion on technology in 2002 (Merrill Lynch, 2003).

My findings from Project 1 rated this risk as having a risk significance score of 97%; a score that places it in third place in terms of significance. In terms of risk mitigation it has a score of 0%, the lowest score possible, even though there is documentary evidence of a process in place.

Optimising the environment of the two banks is a very difficult task. In this research the applications inventories used for just two areas of the acquired bank were examined. Financial control listed 14 major systems [DOC16B] while risk controlling listed 16 major systems [DOC17B]. The integration plans, even at a high level, listed several hundred systems between the two banks [DOC06C]. This is a difficult and complex activity, made more difficult by the desire for speed.

If the risk should come to pass it could drive up technology costs and operating costs. More importantly it could result in the firm divesting itself of key skills, much as envisioned in risk 24 "The organisation cannot maintain or motivate critical staff" which scored 98% for significance and 34% for mitigation. The reason for this is that

divesting in certain technologies can lead to the loss of the staff whose skills support that technology.

This is an important risk. Mis-handling can lead to the destruction of shareholder wealth as the superior systems (assets and sources of competitive advantage) can be abandoned. It can also impact the skill base and staff morale.

3.3.3 How was the risk managed?

The risk was managed using a simple formal procedure. Each area produced an inventory of their systems, including data relating to technology used, the number of people needed to support it, cost and so on. These were then compared and in each area a set of systems selected. The systems not selected were then retired.

There was a perception that the systems of the acquiring bank were generally preferred over those of the acquired bank.

"A lot of good (Bank B) systems were just dumped for no reason" [Inv B]

To see if this was the case I looked at the strategic systems that were on the inventories and compared them with those that were in production. All the systems that had been retired, or were due for retirement, came from the acquired bank. This obviously encourages the perception of bias in making the systems retirement decision by the acquiring bank.

3.3.4 Why the risk was managed in a negligent manner

This section describes the factors that explain the behaviour relating to this risk.

Outcome History - The bank does not appear to have any significant experience in relation to this risk. This means is that there is not a history relating to this activity. However, this might explain why the associated risk might not be understood, or even perceived. This could lead the organisation to operate in a negligent manner because there is not a strong understanding of the significance of the risk.

The lack of any experience could lead to excessive behaviour in this organisation, however, in this context it contributed to negligent behaviour because of a failure to articulate the impact.

Problem Framing - I didn't find any evidence of problem framing, but when one considers the emphasis being placed on speed of execution, the risk associated with the risk may seem less significant than slow execution of the integration process. This could explain the negligent behaviour witnessed.

Problem Domain Familiarity - The problem domain is outside the normal operation of the bank. Like most organisations, the bank would frequently focus on environment optimisation, and that would often include system reduction. There would never be a situation like this in the normal operation because if it was out of the ordinary, the organisation may not be able or willing to identify or articulate the associated risk. As a result, this could contribute to negligent behaviour.

Organisational Control - There is no evidence of a detailed organisational control in place, and this could explain why the risk was negligently managed. Without a balanced control the decision-making is decentralised. This means that managers in the business areas would have to make the decisions. Since they were mostly from the

acquiring bank, it is likely that they would prefer to work with the systems they are familiar with

Future Orientation - Because the time frame is long and the organisation is slightly risk-seeking, the behaviour is likely to favour more high-risk activities. Considering this, we would expect to see low risk behaviour (i.e. excessive behaviour).

3.3.5 Summary

This section includes Table 21 - Case "C" Risk determinants. It presents a summary of the risk determinants and the role they played in the excessive management of this risk.

	Risk determinant	Observed in this case	Expected behaviour
Risk Propensity	Risk preference	Risk averse	Excessive
	Inertia	Neutral	Neutral
	Outcome history	No experience	Negligent
Risk Perception	Problem framing	Positive	Negligent
	Top team homogeneity	Homogeneous	Excessive
	Social influence	Risk averse	Excessive
	Problem domain familiarity	Low familiarity	Negligent
	Organisational control systems – Presence Effectiveness Formality	 None Low Informal	 Negligent Negligent Negligent
Temporality	Future orientation	Long-term	Excessive

Table 21 - Case "C" Risk determinants

3.4 Case D – Risk No. 20: Management may focus on the "business" of the merger and not the human resources side of it

This section explores risk number 20.

3.4.1 The risk

This risk is concerned with the focusing of management attention on areas where there are formal business processes involved, as opposed to areas involving human-centric areas, and thus potentially not addressing risks of a human-centric or behavioural nature. Examples of these would include productivity impacted through the failure to utilise all skilled resources, or by low staff motivation.

3.4.2 How important was the risk?

The phrase "People are our greatest asset" is a common business maxim. This issue is about how the acquiring firm treats that asset in the face of this managerial challenge.

The risks associated with this risk are very non-specific and would be impossible to quantify using a statistical probability approach. The views of the panel from Project 1 do give a strong sense of how the management team perceived the risks. The risk was rated as having a risk significance of 100%, the highest score achieved. The mitigation was rated at 19%, ranking it 49th of the 54 risks.

Because of the nature of the risk it is difficult to identify the precise consequences should it occur. However, in addition to the perception of significant risk, there is evidence in the literature to illustrate the associated consequences.

In the field of high reliability control, when looking at closely integrated groups, such as air traffic controllers, it was shown that many of the risks related to fatigue, failure to comprehend instructions or the inappropriate enforcement of formal command structures (LaPorte and Consolini, 1991). Another example was an investigation into the tragic fire at King's Cross underground station, which showed the numerous impacts of human failure (Heath, 1998).

It is impossible to say how important this risk is. Nonetheless it is clearly a cause for concern if managerial focus is unbalanced. This can have a strategic and tactical consequence for the firm.

3.4.3 How was the risk managed?

The management of human-centric risks was formally handled by the Human Resources (HR) department. There was no documentation found relating to any management attention being given to this, or any formal controls being in place to address the inherent risks associated with this risk.

3.4.4 Why the risk was managed in an negligent manner?

This section explains the reasons for the behaviour observed.

Outcome History - There is no history of how the acquiring bank behaved when facing this or similar risks, though it is possible that the organisation is so regulated and control-focused that it is used to putting the business issues to the fore, rather than the human issues. If this is the case, then it would seem likely that if the human issue "takes a back seat", there is a history of it being ignored, which would lead to negligent behaviour.

Problem Framing - There is no evidence as to how this risk was framed within the organisation. Considering the outcome history that non-specific outcomes from a risk would seem more like positive framing than "hard" specific risks, one would expect to see the risk treated in a negligent manner.

Problem Domain Familiarity - This sort of risk is likely to fall outside the problem domain of the organisation, but it is the responsibility of the centralised HR organisation to be familiar with it and to deal with it. This means that the organisation as a whole might behave negligently, while at the same time those with responsibility for it might treat it excessively.

Organisational Control Systems - The control of the risk was centralised, which is unusual for two decentralised organisations which are organised along business lines. This probably means that the controls were ineffective, and therefore we would expect to see negligent behaviour.

Future Orientation - Because the time frame is long and the organisation is slightly risk-seeking, the behaviour is likely to favour more high-risk activities. Considering this, we would expect to see excessive behaviour.

3.4.5 Areas not addressed by the literature

The role of culture could also be a factor. The predominant national culture, German, would be considered quite high-scoring in terms of preference for high power distance. It is certainly possible that there would be a greater focus on formal, business-focused issues, as opposed to those that are "softer", such as staff retention.

3.4.6 Summary

This section includes Table 22 - Case "D" Risk determinants summary. It presents a summary of the risk determinants and the role they played in the excessive management of this risk.

	Risk determinant	Observed in this case	Expected behaviour
Risk Propensity	Risk preference	Risk averse	Excessive
	Inertia	Neutral	Neutral
	Outcome history	Little history / Neutral	N/A
Risk Perception	Problem framing	Positive	Excessive
	Top team homogeneity	Homogeneous	Excessive
	Social influence	Risk averse	Excessive
	Problem domain familiarity	Low familiarity	Excessive
	Organisational control systems –		
	Presence	None	Negligent
	Effectiveness	N/A	N/A
	Formality	Informal	Negligent
Temporality	Future orientation	Short-term	Excessive
Determinants not included in the model	Dominant national culture	Negligent	N/A

Table 22 - Case "D" Risk determinants summary

4 Discussion

The table below presents the results of the four previous tables, and also shows how national culture or industry regulation played a direct role in the management of the risks covered in the cases.

This project has five findings which make a contribution to our understanding. The first is that where there is a successful outcome history in managing particular risks, they will be managed in an excessive manner. The second is that where there is industry-specific regulation, they will be managed in an excessive manner. The third is that the temporal theory proposed by Das and Teng (2001b) does not appear to apply in the context of this project. The fourth is that where organisational controls exist, they will be applied in an excessive manner. The fifth finding is that where there is a high degree of familiarity with the problem domain, the organisation will be more sensitive to those risks.

Some of these findings are new, while others support or contradict earlier research. Dominant national culture has been shown to impact group decision-making among the top team (Janis, 1972). It is possible the this is aided in the case of the target organisation because of the role of the risk characteristics of the dominant national culture, which tends toward formal controls and risk aversion (Hofstede, 1980). Where there is a successful outcome history this has been seen before to play a significant role (Sitkin and Weingart, 1995) and may also indicate that attention is influenced by availability (Tversky and Kahneman, 1973). It has also been seen before that domain familiarity can influence the risk perception and propensity (March and Shapira, 1987).

	Risk determinant	Case "A" Excessive	Case "B" Excessive	Case "C" Negligent	Case "D" Negligent
Risk Propensity	Risk preference	Excessive			
	Inertia	Neutral			
	Outcome history	Excessive	Excessive	Negligent	N/A
Risk Perception	Problem framing	Excessive	Excessive	Negligent	Excessive
	Top team homogeneity	Excessive			
	Social influence	Excessive			
	Problem domain familiarity	Excessive	Excessive	Negligent	Excessive
	Organisational control systems –				
	Presence	Excessive	Negligent	Negligent	Negligent
	Effectiveness	Excessive	Excessive	Negligent	N/A
	Formality	Excessive	Negligent	Negligent	Negligent
Temporality	Future orientation	Negligent	Excessive	Excessive	Excessive

Table 23 - Summary of cases

The summary of the four cases as analysed using the analytical framework is presented in the table above (Table 23 - Summary of cases). This shows a number of interesting points upon which I will build my proposals. In addition there are the two factors identified in the first case. These are the role of industry regulation and the role of national culture.

Industry-specific regulation only applies to the first case, "A". The role of national culture is the same across all cases and so is not specifically examined in the other cases. There are a number of specific factors that are constant to all four cases, but at the same time I define the constraints within which the propositions apply. These constraints are:

1. The organisation is operating outside its normal operational domain – this is to say it is performing functions at an overall (macro) level which are extraordinary to normal business activities

2. The organisation has a risk preference toward risk aversion (excessive risk management)

3. There is a high degree of top team (senior/executive management) homogeneity

4. Within the organisation there is social pressure toward risk aversion (excessive risk management)

5. The dominant national culture is risk averse; and

6. The top team shares the dominant national culture.

When these conditions apply, based on what has been seen in Project 2, the following will occur:

Proposition 1 – When a risk is addressed by industry-specific regulation, the risk will be well managed, tending toward excessive management.

Proposition 2 – When a risk has a successful outcome history in normal business conditions the risk will be well managed, tending toward excessive management.

Proposition 3 – When a risk is managed using effective organisational controls in normal business operation the organisation the risk will be well managed, tending toward excessive management.

Proposition 4 – When a risk is not addressed by industry-specific regulation, the risk will not be well managed, tending toward negligent management.

Proposition 5 – When a risk does not have a successful outcome history in normal business conditions the risk will not be well managed, tending toward negligent management.

Proposition 6 – When a risk is not managed using effective organisational controls in normal business operation the organisation the risk will not be well managed, tending toward negligent management.

An interesting find from this research is that the risk theories relating to temporality do not seem to be applicable. In the following chapter I will test the first three propositions, and also the apparent effectiveness of the future orientation risk determinant to see how well they apply in the situation of the other risk identified in Project 1. Since propositions 4, 5 and 6 are opposites of 1, 2 and 3 these will, in effect, be tested when propositions 1, 2 and 3 are tested.

REPORT: PROJECT 3

This chapter presents the third project. Project 3 searches for evidence to support the six propositions presented in Project 2 using the qualitative data gathered in Project 1. The chapter is divided into a number of sections. The first is the theoretical position from which the project is conducted. The second section is the method, which describes how the project was constructed. The third section presents the results, and the fourth section briefly discusses the results.

1 Theoretical position

Project 2 presents a set of six propositions. These propositions relate to the role of industry-specific regulation, outcome history and effective management controls as risk determinants of the behaviour of the target organisation, while executing the acquisition under study. The propositions suggest conditions which will result in excessive (disproportionately large compared to the risk) or negligent (disproportionately small compared to the significance of the risk) management of the risks faced. The propositions are:

Proposition 1 – When a risk is addressed by industry-specific regulation, the organisation will tend towards excessive risk management behaviour.

Proposition 2 – When a risk has a successful outcome history under normal business conditions, the organisation will tend towards excessive risk management behaviour.

Proposition 3 – When a risk is managed using effective organisational controls in normal business operation, the organisation will tend towards excessive risk management behaviour.

Proposition 4 – When a risk is not addressed by industry-specific regulation, the organisation will tend towards negligent risk management behaviour.

Proposition 5 – When a risk does not have a successful outcome history under normal business conditions, the organisation will tend towards negligent risk management behaviour.

Proposition 6 – When a risk is not normally managed using effective organisational controls in normal business operation, the organisation will tend towards negligent risk management behaviour.

The first project identified the risks which the organisation faced during the acquisition, and also the degree of significance and mitigation that related to those risks. If the propositions are supported, one would expect to find that a population of risks that a given proposition relates to would have a statistically significant difference from a population of risks that the proposition does not relate to, in terms of the degree of excessiveness or negligence exhibited. Testing this for each proposition is the goal of Project 3.

This type of testing is very common in quantitative research. Black (1999a:402) describes it as "one of the most basic situations in research". The object as described above is to compare two sets of data at the same time and test to see if their average scores (risk behaviour) are significantly different. The required statistical test is the *t*-test (Black, 1999). The null hypothesis is that the two sets are from the same

population, and will therefore have similar means. Specifically, the *t*-test examines whether or not the difference between the means of the two samples drawn from different populations is sufficiently large to be statistically significant.

The application of the *t*-test will therefore need to check for these conditions and the test adjusted accordingly. This testing and appropriate adjustment need to be considered for the application of this approach.

2 Method

This section describes the method applied in Project 3. This section describes the steps taken in the research to use the *t*-test.

Each test assumes that two sets of data are being examined; the set to which the risk determinant relating to the proposition applies, and that which it does not.

To determine this it is desirable to use a panel of people who understand the risks. As discussed in Project 1, there are approximately seventy to eighty people within the target organisation who would have a sufficient breadth of knowledge to be able to contribute. Of these 15 (20%) of the total population were sampled. During Project 3 I was no longer an employee of the target organisation, however, five members of the original panel agreed to take part in a small survey to ascertain which propositions related to the relevant risks. Four of the participants actually completed and returned a questionnaire.

The purpose of the questionnaire is to decide which risk determinants apply to which risks. For each risk the panel were asked to answer three questions:

- Does industry-specific regulation exist which addresses this risk?

- Does the target bank have a successful outcome history in managing this risk?

- Can this risk be managed using normal management controls?

Each question required either a "Yes" or a "No" response.

Industry-specific regulation refers to regulatory obligations that apply specifically to firms in this industry. For the financial sector in the United Kingdom these are enforced by the Financial Services Authority (FSA), which is the statutory regulatory authority. These are different from general regulation such as health and safety and merger and acquisition legislation, which applies to all industry sectors in the UK.

Outcome history refers to the record of dealing with a given risk or similar risks. For example, the firm has a successful outcome history in making sure that traders know their positions, which is something that needs to be done on a daily basis. On the other hand, the firm does not appear to have such a successful outcome history in managing the risks relating to people management.

Risks which are, or can be, managed using normal management controls are those where the organisation does not require any special controls in addition to those already in place.

Normally such a questionnaire would be developed and piloted. Piloting a questionnaire was not appropriate in this case because so few respondents were available. The questionnaire was made as simple as possible (see Appendix N), and tested. I was available to support the respondents with any queries which might arise, either in person or over the telephone.

In practice, each participant had to examine each risk and determine whether any of the three criteria applied to that risk. The first criteria assesses whether there is any industry- specific legislation that relates to the manner in which the risk is managed. In order to answer "Yes" the management of the risk would need to be addressed by legislation that is specific to financial institutions.

Risk number 1 "Staff are not aware of the progress of the merger" is not addressed by any legislation. There is no legislation relating to how much information staff are entitled to about the progress of the merger. As a result the respondents would be expected to select "No". Risk 18 "The number of positions on the books make it difficult to complete the change of control in the desired time-frame" is more difficult. At first sight the risk is about the volume of transactions that need to be processed. However, FSA regulatory reporting requirements dictate that this activity be completed in the period of the CoC, and in addition, the way in which it is managed is also subject to FSA regulations to ensure capital adequacy. Because of this, the respondents would be expected to answer "Yes" for this risk being subject to industry-specific regulations.

Of the three criteria being applied, outcome history proved to be the most difficult for the respondents. It accounted for most of the differences in rating and required the most time to explain to the respondents. Specifically, the respondents were asked to identify risks where there was a history of successful outcomes. Many of the risks occur in the everyday operation of the organisation. If a risk is one such risk, and if the firm's experience of managing that risk has generally been successful, then the respondent should reply "Yes"; if the risk has not been successfully managed, then the answer is "No". Where the risk is one that is unique to the acquisition process, then it is quite different. One might expect the answer to be "No" for these risks. However,

many of the respondents have had experience of more than one acquisition, which may influence their answer, and they may also translate the risk to the everyday running of the organisation. One example is risk number 20 "The need to transact the merger (acquisition), often under tight deadlines, may result in the management focusing more on the "business" of the merger than on the "softer" human resources side." This risk is clearly specific to the merger, but it is possible that a respondent who may not have experienced a direct outcome history may still wish to take a more general view of how the target organisation prioritises "business" issues in relation to "human" issues, whether or not they relate to the acquisition.

Risk number 46 "Traders are not aware of their positions immediately after the Change of Control" is a risk where there is day-to-day experience of managing this risk, even though it is clearly specific to the merger. It is also a risk that is well managed in the day-to-day environment, so respondents would be expected to respond "Yes" to this criterion.

Risk number 46 is a risk where the basic controls to manage it exist in the normal "everyday" set of management controls. Because of this, it should be rated as a risk which can be managed using existing management controls. On the other hand, risk 45 "Event tracking, the ability to record events in the order they happen not in place. This may impact the ability to analyse and understand the sequence of events when a problem arises" is a risk that may not be faced in the day-to-day operation of the bank, and certainly not by the level of individuals who are generally sufficiently senior not to be normally involved in day-to-day transactions of the business. Because of this, the respondents should respond "No" for management control of this risk.

This process can be seen in the following illustration:

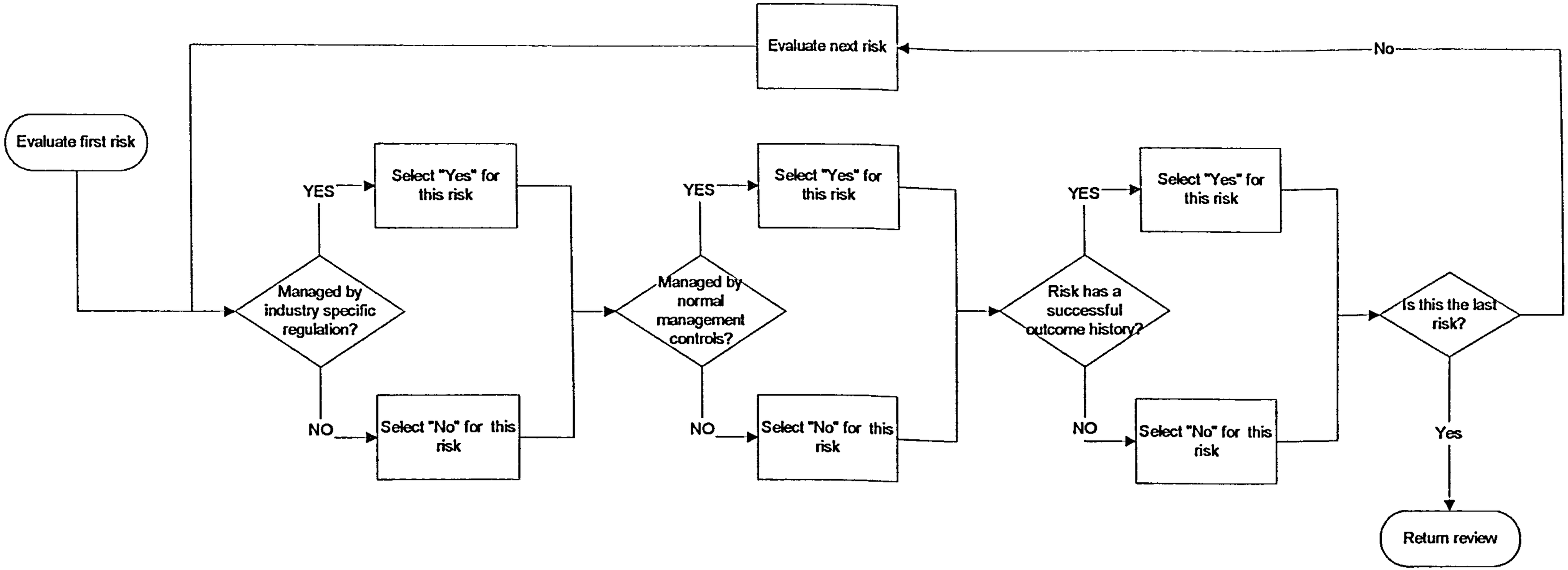

Figure 20 - Questionaire decision points

The data collected illustrated a high level of consistency in the answers provided. In all but seven risks (14%), all of the respondents responded with identical answers. Of these, in six instances a single respondent differed from the group. Where this was the case the majority opinion was selected for the classification. In this situation, the respondent who was in the minority was contacted to explain the reason for their opinion. The reason for the difference was ambiguity relating to the meaning of outcome history, and how that might be interpreted in relation to certain risks.

In one risk the responses were equally divided. This risk (risk number 16), "Inadequate mix of experienced and energetic staff in the control centre", two respondents felt that it could be handled using managerial controls and two did not. The reason for the difference of opinion was that they felt that the target bank did not have any mechanism to monitor or control the level of staff experience within the control team. Two felt that while there was no mechanism they believed that the bank could manage it using ordinary controls, if it so desired. Prior to the questionnaire being sent out I had completed one as a pilot. In order to progress the project, the classification I applied was used as a "casting vote", and I decided that there was not a mechanism in place.

Four of the risks were used in the cases studied in Project 2. Using these would run the risk of tainting the results. As it is not appropriate to use these data they were removed from the population of risks to be used in Project 3.

The excessive or negligence score is calculated for each risk. In project 1 the significance score and mitigating scores were calculated for each risk and mapped onto a graph from 0% - 100%. If the ratio of significance to mitigation is 1:1 then the

scores would be placed along the diagonal from 0 significance, 0 mitigation to 1 significance and 1 mitigation. This is illustrated below as the line from P1 to P2.

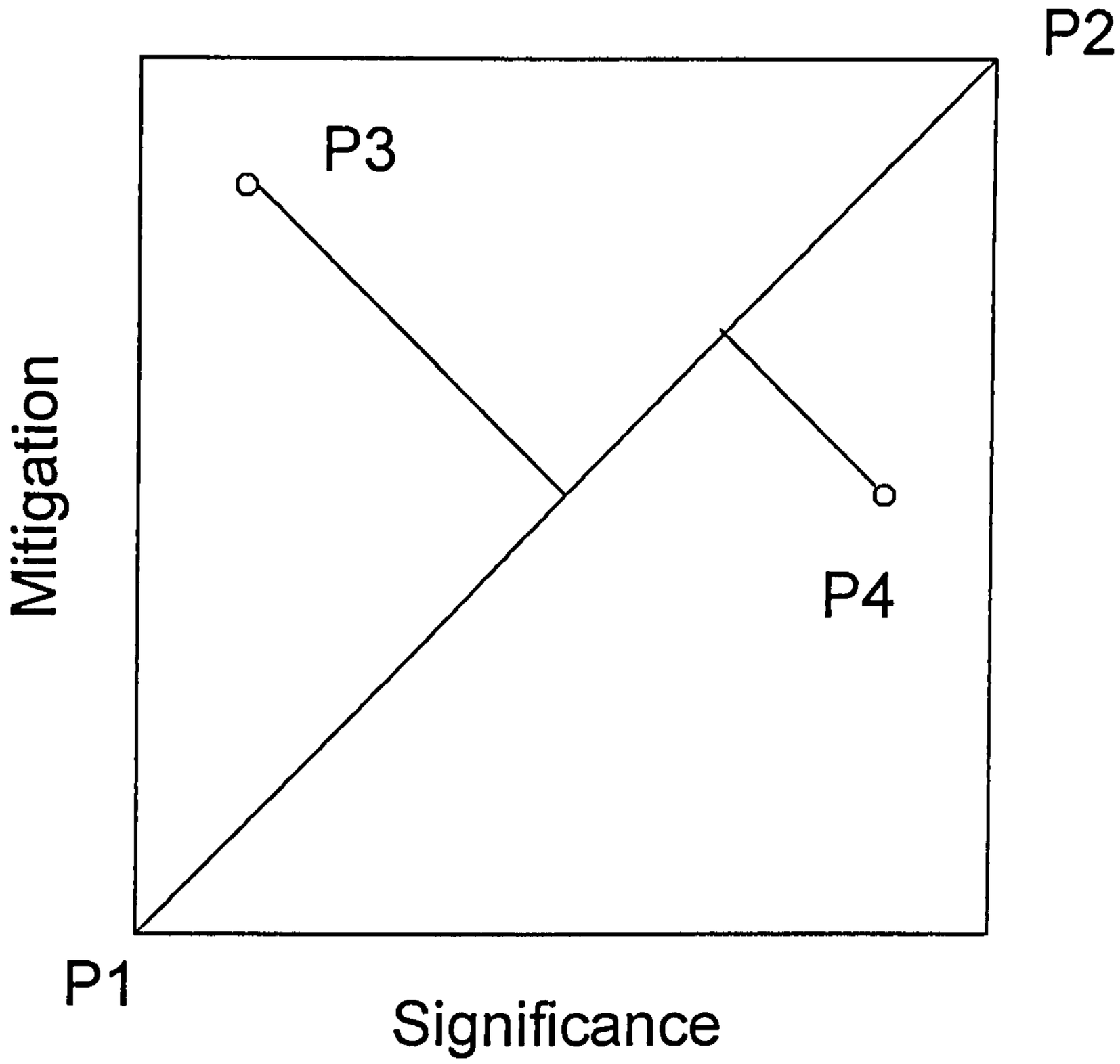

Figure 21 - Calculating excessive/negligent scores

Each risk is then mapped onto the unit square, P3 & P4 in this example. To calculate the score the distance from any given point, say P3, to the line P1, P2 the following calculations are made. This is done by starting with the equation of the line though P1 and P2. This equation is $P = P1 + u(P2 - P1)$. P3 is closest to the line at the tangent that passes through P3 which is the dot product of the tangent and the line is 0, i.e. $(P3 - P) \bullet (P2 - P1) = 0$. Substituting the equation of the line and then solving for u gives point of intersection as $x = x1 + u(x2 - x1)$ and $y = y1 + u(y2 - y1)$. The distance from this point to P3 to the line is then the distance between P3 and the point

(x, y) which can be calculated easily using trigonometry. Negligent scores are signed as negative numbers. This calculation is made for each risk.

The following table illustrates the population size, average and standard deviation for the excessiveness/negligence scores. This is for various populations. That is the total population, the population used in this project, and the population that is relevant to the six propositions.

Project 1 population is the total set of risks from the Delphi section of Project 1. There are 54 risks and the average excessive/negligent score is 1.55 (overall a slightly excessive tendency when averaged across the population).

Project 3 population is the population in Project 1 less the four risks used to derive the proposition in Project 2. Hence there are 50 risks. The average score for excessiveness/negligence is still slightly excessive.

The populations used for proposition 1 to 6 apply are populations of risks drawn from the Project 3 population where the criteria of the corresponding population applies. e.g. If a risk has a successful outcome history, then that risk is part of the population where proposition 1 applies and so forth.

	Number of risks	Average excessive / negligent score	Standard deviation of score
Project 1 population	54	1.55	26.65
Project 3 population[8]	50	1.57	24.44
Risks to which proposition 1 applies	7	6.58	23.84
Risks to which proposition 2 applies	27	8.32	20.20
Risks to which proposition 3 applies	17	12.32	26.83
Risks to which proposition 4 applies (opposite to proposition 1)	43	0.78	24.72
Risks to which proposition 5 applies (opposite to proposition 2)	23	-6.37	26.95
Risks to which proposition 6 applies (opposite to proposition 3)	33	-3.97	21.49

Table 24 - Statistical properties of populations used in Project 3

Each of the six propositions was tested using the same technique. For each proposition the population of risks (50 risks) was divided into two sets. One is the set of risks to which the proposition applies (X1), and the other is the set of risks to which it does not apply (X2).

Normal distributions are appropriate where there is a large sample size ($n \geq 30$) or where the sample size is small ($n < 30$) and the population is known and δ is known. In this project the general population is divided into sets where the propositions apply (X1) and do not apply (X2). This is done by comparing the mean of the two populations. In this project the sample size is small, in one case 7) and the population is normally distributed but δ is not known. In these circumstances the use of the t distribution is appropriate (Kazmier, 1995: 139).

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[8] The four risks used in Project 2 are removed

As stated earlier, the populations are independent of each other, which eliminates the need to test for that.

For each sample in each proposition, the number of samples is counted and the average and standard deviation calculated. The F test is conducted for each. Based on the results of the F test it is possible to determine whether the data is homoscedastic or heteroscedastic; that is, whether they have similar or different volatility in their values. The F test is conducted using by following the five steps outlined in Cassell (1969:106). This informs the heteroscedastic nature of the two samples.

Knowledge of the heteroscedastic nature of the two samples dictates how the *t* test is conducted. This data is needed for the population mean test (*t* test), which makes it possible to test the validity of the propositions to various degrees of statistical confidence. This is achieved by determining whether the means of the population pairs are similar (H_0: means are similar) or different (different means).The *t* tests were conducted by following the steps as outlined in Cassell (1969:95).

2.1 Concerns with the application of this method

The main concern with this method is the small population size; 50. The *t* distribution addresses this. The tables used for calculation t*df* do not show values of all T values. Fortunately n>30, so it is possible to use a z distribution instead (Kazmier, 1995). The calculations were also made using the FTEST and TTEST functions in Microsoft Excel.

A further concern can be the possibility of a Type II error, when one is performing multiple tests from the same data. In this project the test is performed three times, each time with a high confidence level ($P<0.025$). This means that it is likely that 0.075 instances will be incorrect. This value is so low that it is not a concern for this project.

3 Results

This section presents the results of the calculations performed in this project. The *f* test yielded the following results:

Proposition pair	**t**	**df**	**p-one tailed**
Proposition 1 and 4	-0.5606	48	0.2888
Proposition 2 and 5	+2.2013		0.0162
Proposition 3 and 6	-2.3321		0.0119

Table 25 - Results of F and *t*-tests

The *t* test found evidence to support four of the six proposition with a high (>0.025) degree of confidence.

4 Discussion

This section presents a discussion of the project findings and results.

4.1 Industry regulation

Proposition 1 and Proposition 4 address the role of industry-specific regulation in determining risk behaviour. Proposition 1 suggests that risks which are subject to

industry-specific regulations will be managed so well that they will tend toward being excessively managed. This proposition was not supported by the tests. Proposition 4 suggests that the absence of industry-specific regulation will result in risks being inadequately managed, so tending toward negligent management. This too was not supported.

The results are surprising considering the evidence found in Project 2. The calculations using the Excel TTEST and FTEST functions revealed that the statistical significance was 23%. Also, as discussed earlier, the need to perform an F test, because the data was homoscedastic, would result in it being harder to achieve statistical significance. Considering these factors, while the research cannot support the propositions and the role of industry-specific regulation, it does not disprove it either, and there is sufficient evidence to warrant further research.

4.2 Outcome history

Propositions 2 and 5 relate to the organisation's outcome history in terms of the type of risk. Proposition 2 suggests that where there is a successful outcome history, the risk is likely to be well managed, tending towards excessive management. Proposition 5 suggests that where there is not a successful outcome history, the organisation will not manage risk well; in fact it will tend towards negligent management. Both these propositions were supported to a high level of confidence (> 0.025). This suggests that outcome history will impact on risk behaviour.

This is clearly important from a number of perspectives. It indicates how well an organisation will operate when faced with new risks that are in some way similar to previous risks that it has faced. This would indicate support for the existing research

relating to outcome theory (Tversky and Kahneman, 1973; March and Shapira Z., 1987; March, 1988; Thaler and Johnson, 1990).

4.3 Normal management control

Propositions 3 and 6 relate to the organisation's management of risks which can be handled using regular management controls. Proposition 3 suggests that where the risks can be managed with regular controls they are likely to be well managed, tending towards excessive management. Proposition 6 suggests that where normal controls are not in place the organisation will not manage the risk well. The management of this risk will be poor, tending towards negligent management. Both of these propositions were supported to a high level of confidence (> 0.025).

The findings support earlier work by March and Shapira (1987) and Tversky and Kehneman (1973) on problem domain familiarity. The higher the degree of familiarity, the greater the tendency toward better, and often excessive, management. This would be the first time such theories have been tested in unfamiliar problem domains.

This also raises questions about the role of sense-making. Weick (1988) shows that sense- making in an organisation during a crisis can often be in the context of the normal environment, which can in extreme circumstances lead to people making incorrect decisions and taking detrimental actions as the members of the organisation are either unable to develop creative solutions or are unable to follow unorthodox solutions (Weick, 1993).

These findings therefore show that outcome history and normal operational controls play a particularly important role in determining risk behaviour in the unfamiliar

problem domain. The challenge for organisations is either to take steps to make the organisation more creative (Weick, 1993) or to put more robust controls in place which can deal with the unexpected, or failing that, keep the organisation functioning well enough to give it time to come up with the appropriate risk management behaviour.

PART C: Appendices and Back Matter

Appendix A – Sample risk questionnaire

The following 17 pages show a sample questionnaire.

Investment Bank Merger Risk Research Project

Many thanks for the time you have already contributed by allowing yourself to be interviewed. From my interview with you and others I have managed to identify over 50 merger related issues. These issues are outlined in the attached questionnaire. At this step (the second of three) I would like to ask you to briefly look at each of these risks. Then I would like you to complete the associate boxes.

The risks are written to represent possible hazards, it is not intended to say they have ever actually happened. If you consider a risk not to be a risk at all then please tick the 'Not a risk' box. If you feel it is a possible risk then please grade it under the following criteria:

- Probability
- Impact
- How well mitigated?

If you do not wish to comment on a risk, please leave it blank.

Probability: What is the probability the risk would occur if the bank did not have any special processes in place?
Impact: How significant would the impact be if the risk were to occur?
How well mitigated: During the last merger (Bank B & Bank C) how well was this risk mitigated?
Grading:

Grade	Probability	Impact	How well mitigated
6	Almost certain to occur	Critical – would threaten the bank	Very well – Risk almost impossible
5	Probably	Major – would threaten the merger	Well – Risk unlikely to occur
4	More likely than not	Significant – Substantial losses would be incurred	Good – Risk less likely than not to occur
3	Less likely than not	Noticeable – The impact would be considerable	Fair – Risk not well mitigated
2	Unlikely	Slight – Some impact	Very little done to mitigate the risk
1	Highly unlikely	Minor – No noticeable impact	Not mitigation

Returning the questionnaire:

Please return the questionnaire to be my Friday, March 23rd, 2000, if possible. Either by post, internal mail or fax.

Post:
Michael McGrath,
Bank C plc
Street
London

Internal Mail:
Michael McGrath
2nd Floor, Street Address

Fax:
+44 (020) 7XXX XXXX

Once again, many thanks for your help with this project,

Michael McGrath

Merger Risk Questionaire

Risk

Risk description

	Probability 1-6	*Impact* 1-6	*How well mitigated?* 1-6
Knowledge diluted by a single point of control The use of control centres may mean that decision making is moved from those actioning it and thus may result in a dilution of knowledge in trems of knowledge and decision making taking place in two separate locations.			
☐ *Not a risk*			36
Formal escalation through control structures may result in a slowing of the decision making process. The time required to escalate issues through the control structure may result in the time required to respond to an issue being longer than necessary.			
☐ *Not a risk*			37
Everyone involved in the change of control not aware of the plan Not everyone taking part in the change of control may be aware of the plan for the Change of Control.			
☐ *Not a risk*			38

Risk Risk description	*Probability* *1-6*	*Impact* *1-6*	*How well mitigated?* *1-6*	
Change of Control reporting requirements not defined at start of CoC period. The exact reporting requirements (reports, views of progress etc. not defined at the outset). This may result in increased stress levels as staff have to improvise so as to create new types of reports that were not anticipated.				☐ *Not a risk* 39
Formal reporting lines bypassed Formal reporting lines and procedures are bypassed in order to gather information. This can undermine the flow of information.				☐ *Not a risk* 40
Progress not reported "down" the organisation. Status information gathered at the control centres is not reported back "down" the organisation.				☐ *Not a risk* 41
The recipients of information are not clearly defined It is not clear to those who are providing reporting functions who exactly needs to receive specific information.				☐ *Not a risk* 42

Risk Risk description	*Probability* *1-6*	*Impact* *1-6*	*How well mitigated?* *1-6*	
System dependencies not clearly defined Because of the complexity of the systems and their interdependencies staff may not have a full understanding of information flows and dependencies.				☐ *Not a risk* 43
Control centre staff not well trained. Control centre staff are not well trained in the various tools they need to use. This impacts efficiency and may reduce their ability to respond to unforeseen events.				☐ *Not a risk* 44
No event tracking in place. Event tracking, the ability to record events in the order they happen not in place. This may impact the ability to analyse and understand the sequence of events when a problem arises.				☐ *Not a risk* 45
Trading desks not aware of their positions after Change of Control. Traders are not aware of their positions immediately after the Change of Control period.				☐ *Not a risk* 46

Risk Risk description	*Probability* *1-6*	*Impact* *1-6*	*How well mitigated?* *1-6*
Settlement function not clear as to what positions need to be settled or when. Settlement function within the bank are not clear as to which positions need to be settled, or when they may need to be settled. This results in significant potential costs.	☐ *Not a risk*		47
Communications with external parties not coordinated. Communications with the various external parties (regulators, clients suppliers etc.) not centrally coordinated.	☐ *Not a risk*		48
Non-trading areas not fully engaged. Non-trading functions (e.g. audit, risk, legal) are not fully engaged in the ‚merger process. They may result in integration issues being identified late in the process.	☐ *Not a risk*		49
Organisation not confident that merger will actually happen. Staff are slow to believe that the merger is actually going to happen. This impacts the speed of mobilisation.	☐ *Not a risk*		50

Risk Risk description	*Probability* *1-6*	*Impact* *1-6*	*How well mitigated?* *1-6*	
Control centres not set-up correctly. At the start of the Change of Control period control centres may not be configured or operating correctly. This may include PC's not working, telephone lines not in place and such like.				☐ *Not a risk* 51
Merger information packs not distributed in time. The information packs for the Change of Control are not distributed in time				☐ *Not a risk* 52
Change of Control plans not completed in a timely manner. The Change of Control plans are not completed sufficiently in advance to allow everyone to become familiar with them.				☐ *Not a risk* 53
Trading desks not aware of their positions at the start of Change of Control. Traders are not aware of their positions at the start of the Change of Control period.				☐ *Not a risk* 54

Risk Risk description	*Probability* *1-6*	*Impact* *1-6*	*How well mitigated?* *1-6*
Trading desks not aware of their positions during Change of Control. Traders are not aware of their positions duration the Change of Control period.	☐ *Not a risk*		55
Business areas do not report progress in a timely manner. Business or works area do not report current progress during the Change of Control period.	☐ *Not a risk*		56
Staff not aware of progress of merger. Staff are not aware of the progress of the merger. This can impact day to day performance and the general level of morale	☐ *Not a risk*		1
Inter-organisational connectivity not achieved. Systems links between the two organisations have not been fully identified, tested or implemented	☐ *Not a risk*		2

Risk Risk description	*Probability* *1-6*	*Impact* *1-6*	*How well mitigated?* *1-6*
General Organisational Cultures do not match. The cultures or perceived cultures of the two organisations do not match. This may include perception of either organization's history or business practices. It may become the basis for resistance to the merger in both organisations.	☐ *Not a risk*		3
Business areas do not report progress in a timely manner. Business or works area do not report current progress in the run up to the merger.	☐ *Not a risk*		4
Control centre staff are not the correct personality types for the role. Control centre staff do not have the personality or temperament required to perform the role under pressure. This may lead to conflict, lower morale and underperformance.	☐ *Not a risk*		5
Control centre staff do not fully understand what they are reporting. Staff working in reporting functions with the control centres may not have sufficient understanding of the change of control plan and the bank's operations to be able to understand what they are reporting. This may lead to communications not being sufficiently focused or meaningful.	☐ *Not a risk*		6

Risk Risk description	*Probability* *1-6*	*Impact* *1-6*	*How well mitigated?* *1-6*
Investment bank's operations are so large and complex that it is not possible for single individuals to fully understand it. Investment bank's operations are so large and complex that it is not possible for single individuals to fully understand it.	☐ *Not a risk*		7
Seniority of rank may take precedence over knowledge in the operation of the control centre Emphasis upon rank (e.g. corporate level) may inhibit discussion and decision making based on individual's skills	☐ *Not a risk*		8
Control centre managers are not good people managers Control centre managers need to be very good at people management in order to ensure good people management in the control centre.	☐ *Not a risk*		9
Control centre tools not robust. The tools used in the control centre need to be robust and flexible.	☐ *Not a risk*		10

Risk Risk description	*Probability* *1-6*	*Impact* *1-6*	*How well mitigated?* *1-6*	
Control staff not aware of contingency measures. Control centre staff are not aware of contingency planning.				☐ *Not a risk* 11
Control centre staff do not 'know' their counterparts in other locations Control centre staff may not know their counterparts in other locations. This may be a barrier to performance and communications.				☐ *Not a risk* 12
Control centre environment not comfortable The environment within the control centre may not be comfortable in terms of space, temperature, lighting, size. This can impact staff alertness and performance.				☐ *Not a risk* 13
Food and drinks available to the control centre staff not sufficient. Food and refreshments available to the control centre staff (including over-night) is not suitable or sufficiently varied.				☐ *Not a risk* 14

Risk Risk description	*Probability* *1-6*	*Impact* *1-6*	*How well mitigated?* *1-6*	
Amenity and hygiene facilities not suitable for control centre working Amenity and hygiene facilities available to control centre staff (e.g. showers, exercise room) not sufficient or not available				☐ *Not a risk* 15
Inadequate mix of experienced and energetic staff in the control centre. The mix of experienced managers and more junior, possible more energetic and flexible staff may not be correct.				☐ *Not a risk* 16
Need to rationalise software may mean that 'good' software is disposed of. Need to rationalise software may mean that 'good' software is disposed of.				☐ *Not a risk* 17
The number of positions on the books make it difficult to complete the change of control in the desired time-frame. The number of positions on the books make it difficult to complete the change of control in the desired time-frame.				☐ *Not a risk* 18

Risk Risk description	*Probability* *1-6*	*Impact* *1-6*	*How well mitigated?* *1-6*
Post merger staff not 'introduced' to new organisation Staff in the new organisation may not be given any type of staff induction that would accompany any "normal" new starter, this may impact their ability to perform in the new organisation.			
☐ *Not a risk*			19
Management may focus on the 'business' of the merger and not the human resources side of it The need to transact the merger, often under tight deadlines, may result in the management focusing more on the 'business' of the merger than on the 'softer' human resource issues.			
☐ *Not a risk*			20
'Overnight' re-branding of corporate systems may result in a shock or possible resentment by staff The rapid re-branding of corporate symbols (such as office buildings) may be a shock to staff. This in turn may result in feelings of resentment, which may impact corporate performance.			
☐ *Not a risk*			21
Staff not aware of their position in the new combined organisation. Staff may be performing roles while unclear of their future employment or organisational status or role within the new organisation.			
☐ *Not a risk*			22

Risk Risk description	*Probability* *1-6*	*Impact* *1-6*	*How well mitigated?* *1-6*	
Personal contacts network no longer valid, or significantly reduced. Because of the expanded new organisation, staff may be unable to use their usual network of contacts to execute their roles.				☐ *Not a risk* 23
Critical staff dependency. The merger or the new combined organisation may be dependent on a relatively small number of key staff (such as business subject matter experts or technologists).				☐ *Not a risk* 24
Organisations slow to mobilise itself for the merger. The organisations involved may take a long time before they are fully mobilised to address the merger. This can leads to uncertainty and some "organisation apathy".				☐ *Not a risk* 25
Talented resource not fully utilised. Because of the immediacy of the merger it is possible that managers will instinctively work with staff they know and thus inadvertently disadvantage staff from the 'other' organisation.				☐ *Not a risk* 26

Risk Risk description	*Probability* *1-6*	*Impact* *1-6*	*How well mitigated?* *1-6*	
Valuation of the merger incorrect. It is possible that the valuation of the organisations may not be correct. This could disadvantage the shareholders of one organisation or another.				☐ *Not a risk* 27
Merger execution 'due diligence' not completed in a timely manner. Late completion of due diligence may uncover issues late in the merger process when they are harder to address.				☐ *Not a risk* 28
Escalation process too sensitive. By having the escalation process too sensitive relative insignificant issues get raised to management. This results in time being consumed in the resolution and tracking of the issues. This can lead to organisation "snow blindness".				☐ *Not a risk* 29
Control centre not practiced. Lack of practice may mean there is a risk that staff are not familiar with there roles or the events in the merger.				☐ *Not a risk* 30

Risk Risk description	*Probability* *1-6*	*Impact* *1-6*	*How well mitigated?* *1-6*	
Control centre overly practiced. Over practicing of the control centre and its operations may result in fatigue and a sense of excess confidence.				☐ *Not a risk* 31
Business lines not utilizing central PMO resources. Central resources such as Business Integration Teams (BITs) are not used by there businesses.				☐ *Not a risk* 32
Co-ordination meetings too large. Meetings to disseminate information, check status or reach decisions may involve too many people to be effective.				☐ *Not a risk* 33
Staff become 'burned out'. A long period of long hours and standing meetings, high pressure and stress may result in staff becoming burned out.				☐ *Not a risk* 34

Risk

Risk description

	Probability *1-6*	*Impact* *1-6*	*How well mitigated?* *1-6*
Financial & risk control may not be as accurate as required			
In the rush to execute the merger the completeness and accuracy of financial and risk control may suffer, thus the bank may be exposed to risks it is not aware of	☐ *Not a risk*		35

Additional Comments/Risks

Pearson's product-moment coefficient

$$r = \frac{n(\sum XY) - (\sum X)(\sum Y)}{\sqrt{\left[n\sum X^2 - (\sum X)^2\right]\left[n\sum Y^2 - (\sum Y)^2\right]}}$$

Appendix C – Calculations used to calculate statistical significance

The t value for the degrees of freedom is calculated from the size of the populations – 2, thus:

$$t_{df} = t_{n1+n2-2}$$

The standard error is:

$$\hat{\sigma}^2 = \frac{(n_1 - 1)s_1^2 + (n_2 - 1)s_2^2}{n_1 + n_2 - 2}$$

The standard error of the differences is therefore:

$$\hat{\sigma}_{\bar{x}1-\bar{x}2} = \sqrt{\frac{\hat{\sigma}^2}{n_1} + \frac{\hat{\sigma}^2}{n_2}}$$

Thus to test the hypothesis we need to see if it is the range for that interval Y:

$$Y = (\overline{X}_1 - \overline{X}_2) \pm t_{df}\hat{\sigma}_{\bar{x}1=\bar{x}2}$$

Propositions 1 and 4

Values	X_a	X_b
n	43	7
sum	0.3340000000000001	0.4479999999999995
mean	0.0078	0.064
sumsq	2.5692	0.3698
SS	2.5666	0.3412
variance	0.0611	0.0569
st. dev.	0.2472	0.2385

$Mean_A - Mean_B$	t	df
-0.0562	-0.5606	48

P	one-tailed	0.2888485

Propositions 2 and 5

Values	X_a	X_b
n	27	23
sum	2.248	-1.4660000000000002
mean	0.0833	-0.0637
sumsq	1.2472	1.6918
SS	1.06	1.5983
variance	0.0408	0.0727
st. dev.	0.2019	0.2695

$Mean_A - Mean_B$	t	df
0.147	+2.2013	48

P	one-tailed	0.0162765

Propositions 3 and 6

Values	X_a	X_b
n	33	17
sum	-1.3120000000000002	2.094
mean	-0.0398	0.1232
sumsq	1.5299	1.4091
SS	1.4777	1.1512
variance	0.0462	0.0719
st. dev.	0.2149	0.2682

$Mean_A$ - $Mean_B$	t	df
-0.1629	-2.3321	48

P	one-tailed	0.0119695

4.3.1 Correlations – 2 Tailed Test

		SIG	MIT
SIG	Pearson Correlation	1.000	-.411(**)
	Sig. (2-tailed)	.	.002
	N	55	55
MIT	Pearson Correlation	-.411(**)	1.000
	Sig. (2-tailed)	.002	.
	N	55	55
** Correlation is significant at the 0.01 level (2-tailed).			

4.3.2 Nonparametric Correlations – 2 Tailed Test

		SIG	MIT
SIG	Pearson Correlation	1.000	-.411(**)
	Sig. (1-tailed)	.	.001
	N	55	55
MIT	Pearson Correlation	-.411(**)	1.000
	Sig. (1-tailed)	.001	.
	N	55	55
** Correlation is significant at the 0.01 level (1-tailed).			

4.3.3 Nonparametric Correlations – 1 Tailed Test

Appendix F – Wilcoxon test results

	Probability						
Risk Number	Delphi 1	Delphi 2	Difference			Signed Rank	
	X1	X2	(d=X1-X2)	|d|	Rank |d|	+	-
1	4.33	4.43	-0.0952	0.0952	17		17
2	3.89	4.14	-0.2540	0.2540	36		36
3	4.33	4.36	-0.0238	0.0238	3		3
4	3.75	4.00	-0.2500	0.2500	34		34
5	2.88	3.29	-0.4107	0.4107	47		47
6	3.89	3.86	0.0317	0.0317	5	5	
7	4.86	4.83	0.0238	0.0238	3	3	
8	4.25	4.17	0.0833	0.0833	13	13	
9	3.57	3.67	-0.0952	0.0952	15		15
10	3.43	3.29	0.1429	0.1429	22	22	
11	3.75	3.29	0.4643	0.4643	51	51	
12	3.38	3.50	-0.1250	0.1250	19		19
13	3.71	3.50	0.2143	0.2143	31	31	
14	3.43	3.33	0.0952	0.0952	15	15	
15	3.00	3.17	-0.1667	0.1667	29		29
16	3.25	3.86	-0.6071	0.6071	54		54
17	5.00	5.21	-0.2143	0.2143	31		31
18	3.14	3.43	-0.2857	0.2857	38		38
19	4.71	5.00	-0.2857	0.2857	38		38
20	4.89	4.86	0.0317	0.0317	6	6	
21	4.25	4.00	0.2500	0.2500	34	34	
22	4.67	4.71	-0.0476	0.0476	9		9
23	4.44	4.86	-0.4127	0.4127	48		48
24	4.75	4.71	0.0357	0.0357	8	8	
25	4.13	4.29	-0.1607	0.1607	28		28
26	4.75	5.17	-0.4167	0.4167	50		50
27	3.50	4.00	-0.5000	0.5000	52		52
28	3.67	3.86	-0.1905	0.1905	30		30
29	4.00	3.86	0.1429	0.1429	22	22	
30	4.00	3.86	0.1429	0.1429	22	22	
31	3.00	3.14	-0.1429	0.1429	22		22
32	3.86	4.17	-0.3095	0.3095	41		41
33	4.67	5.00	-0.3333	0.3333	42		42
34	4.44	4.57	-0.1270	0.1270	21		21
35	3.63	3.57	0.0536	0.0536	11	11	
36	3.78	3.71	0.0635	0.0635	12	12	
37	3.44	3.43	0.0159	0.0159	1	1	
38	3.67	4.00	-0.3333	0.3333	43		43
39	4.88	4.29	0.5893	0.5893	53	53	
40	4.63	4.50	0.1250	0.1250	19	19	
41	3.89	4.29	-0.3968	0.3968	46		46
42	3.33	3.57	-0.2381	0.2381	33		33
43	4.22	4.07	0.1508	0.1508	27	27	
44	3.50	3.42	0.0833	0.0833	14	14	
45	2.56	2.83	-0.2778	0.2778	37		37
46	2.29	2.57	-0.2857	0.2857	40		40

	Probability						
Risk Number	Delphi 1	Delphi 2	Difference			Signed Rank	
	X1	X2	(d=X1-X2)	|d|	Rank |d|	+	-
47	2.57	2.93	-0.3571	0.3571	45		45
48	3.56	3.57	-0.0159	0.0159	1		1
49	3.67	3.71	-0.0476	0.0476	10		10
50	3.44	3.86	-0.4127	0.4127	49		49
51	3.33	3.00	0.3333	0.3333	43	43	
52	3.25	3.25	0.0000				
53	4.11	4.14	-0.0317	0.0317	6		6
54	2.43	2.57	-0.1429	0.1429	26		26
55	2.83	2.71	0.1190	0.1190	18	18	
	n =	54.00				430	1040
		Critical value of T	Accept?				
	P=0.050	546	Yes			T +	430
	P=0.025	510	Yes				
	P=0.010	470	Yes				
	P=0.005	441	Yes				

	Impact						
Risk Number	Delphi 1	Delphi 2	Difference			Signed Rank	
	X1	X2	(d=X1-X2)	|d|	Rank |d|	+	-
1	2.89	3.00	-0.1111	0.1111	13		13
2	4.22	4.14	0.0794	0.0794	7	7	
3	3.33	3.64	-0.3095	0.3095	36		36
4	3.75	4.14	-0.3929	0.3929	43		43
5	3.13	3.00	0.1250	0.1250	14	14	
6	2.78	2.71	0.0635	0.0635	4	4	
7	3.14	2.83	0.3095	0.3095	36	36	
8	3.38	3.33	0.0417	0.0417	1	1	
9	2.86	3.00	-0.1429	0.1429	17		17
10	3.29	3.36	-0.0714	0.0714	5		5
11	4.13	3.71	0.4107	0.4107	44	44	
12	2.75	2.67	0.0833	0.0833	9	9	
13	1.86	2.17	-0.3095	0.3095	36		36
14	2.00	2.00	0.0000				
15	2.14	2.25	-0.1071	0.1071	12		12
16	2.13	2.29	-0.1607	0.1607	25		25
17	3.14	3.93	-0.7857	0.7857	49		49
18	4.14	3.86	0.2857	0.2857	33	33	
19	2.57	3.17	-0.5952	0.5952	48		48
20	3.56	3.71	-0.1587	0.1587	22		22
21	2.38	2.67	-0.2917	0.2917	34		34
22	3.22	3.43	-0.2063	0.2063	28		28
23	2.67	3.00	-0.3333	0.3333	39		39
24	4.13	3.71	0.4107	0.4107	44	44	
25	4.00	4.00	0.0000				
26	3.13	3.50	-0.3750	0.3750	42		42
27	3.50	3.36	0.1429	0.1429	17	17	
28	3.83	4.00	-0.1667	0.1667	26		26
29	2.88	2.93	-0.0536	0.0536	3		3
30	3.43	3.29	0.1429	0.1429	17	17	
31	2.43	2.50	-0.0714	0.0714	5		5
32	3.86	3.58	0.2738	0.2738	32	32	
33	3.33	3.43	-0.0952	0.0952	10		10
34	3.78	3.57	0.2063	0.2063	28	28	
35	4.38	4.14	0.2321	0.2321	30	30	
36	3.67	4.00	-0.3333	0.3333	39		39
37	3.44	3.29	0.1587	0.1587	22	22	
38	2.89	3.14	-0.2540	0.2540	31		31
39	3.00	3.00	0.0000				
40	3.00	3.17	-0.1667	0.1667	26		26
41	2.78	2.93	-0.1508	0.1508	20		20
42	2.78	2.93	-0.1508	0.1508	20		20
43	3.56	4.00	-0.4444	0.4444	47		47
44	3.13	3.00	0.1250	0.1250	14	14	
45	3.00	3.33	-0.3333	0.3333	39		39
46	5.00	4.57	0.4286	0.4286	46	46	
47	4.14	4.29	-0.1429	0.1429	16		16

	Impact						
Risk Number	Delphi 1	Delphi 2	Difference			Signed Rank	
	X1	X2	(d=X1-X2)	|d|	Rank |d|	+	-
48	4.33	4.43	-0.0952	0.0952	11		11
49	4.22	4.14	0.0794	0.0794	7	7	
50	3.56	3.71	-0.1587	0.1587	22		22
51	3.00	3.00	0.0000				
52	3.13	3.42	-0.2917	0.2917	34		34
53	3.67	3.71	-0.0476	0.0476	2		2
54	4.50	4.50	0.0000				
55	4.50	4.50	0.0000				
	n =	49.00				405	800
		Critical value of T	Accept?				
	P=0.050	446	Yes			T +	405
	P=0.025	415	Yes				
	P=0.010	380	No				
	P=0.005	356	No				

	Mitigation						
Risk Number	Delphi 1	Delphi 2	Difference			Signed Rank	
	X1	X2	(d=X1-X2)	|d|	Rank |d|	+	-
1	2.89	3.14	-0.2540	0.2540	25		25
2	4.00	3.71	0.2857	0.2857	26	26	
3	3.33	3.00	0.3333	0.3333	34	34	
4	4.00	3.71	0.2857	0.2857	26	26	
5	3.25	3.43	-0.1786	0.1786	19		19
6	2.89	3.00	-0.1111	0.1111	9		9
7	3.43	2.92	0.5119	0.5119	42	42	
8	3.13	3.00	0.1250	0.1250	10	10	
9	3.14	2.92	0.2262	0.2262	22	22	
10	4.43	3.86	0.5714	0.5714	43	43	
11	4.13	3.71	0.4107	0.4107	40	40	
12	3.75	3.50	0.2500	0.2500	23	23	
13	4.29	3.67	0.6190	0.6190	46	46	
14	4.71	3.75	0.9643	0.9643	51	51	
15	3.57	3.17	0.4048	0.4048	39	39	
16	3.88	3.50	0.3750	0.3750	36	36	
17	2.43	1.71	0.7143	0.7143	49	49	
18	4.57	4.43	0.1429	0.1429	11	11	
19	2.43	1.83	0.5952	0.5952	45	45	
20	3.11	2.79	0.3254	0.3254	33	33	
21	2.63	1.92	0.7083	0.7083	48	48	
22	2.89	2.71	0.1746	0.1746	17	17	
23	2.22	2.29	-0.0635	0.0635	7		7
24	3.13	3.07	0.0536	0.0536	4	4	
25	3.38	3.07	0.3036	0.3036	31	31	
26	2.50	2.17	0.3333	0.3333	34	34	
27	3.83	3.14	0.6905	0.6905	47	47	
28	3.80	3.21	0.5857	0.5857	44	44	
29	3.00	3.00	0.0000				
30	4.29	3.79	0.5000	0.5000	41	41	
31	4.00	3.71	0.2857	0.2857	26	26	
32	3.86	3.92	-0.0595	0.0595	6		6
33	3.00	2.86	0.1429	0.1429	12	12	
34	3.00	2.86	0.1429	0.1429	12	12	
35	3.71	3.57	0.1429	0.1429	12	12	
36	4.00	3.71	0.2857	0.2857	26	26	
37	3.67	3.29	0.3810	0.3810	37	37	
38	3.78	4.00	-0.2222	0.2222	21		21
39	3.00	3.14	-0.1429	0.1429	12		12
40	3.50	3.25	0.2500	0.2500	23	23	
41	3.89	3.57	0.3175	0.3175	32	32	
42	4.22	3.43	0.7937	0.7937	50	50	
43	3.89	3.71	0.1746	0.1746	17	17	
44	4.38	4.08	0.2917	0.2917	30	30	
45	4.56	4.17	0.3889	0.3889	38	38	
46	4.43	4.29	0.1429	0.1429	16	16	

	Mitigation						
Risk Number	Delphi 1	Delphi 2	Difference			Signed Rank	
	X1	X2	(d=X1-X2)	|d|	Rank |d|	+	-
47	4.57	4.50	0.0714	0.0714	8	8	
48	4.44	4.43	0.0159	0.0159	2	2	
49	3.89	3.86	0.0317	0.0317	3	3	
50	4.00	4.21	-0.2143	0.2143	20		20
51	4.22	4.21	0.0079	0.0079	1	1	
52	4.00	4.00	0.0000				
53	3.56	3.50	0.0556	0.0556	5	5	
54	5.14		5.1429	5.1429	53	53	
55	4.57		4.5714	4.5714	52	52	
	n =	53.00				1297	119
		Critical value of T	Accept?				
	P=0.050	526	Yes			T +	119
	P=0.025	491	Yes				
	P=0.010	452	Yes				
	P=0.005	424	Yes				

	Significance						
Risk Number	Delphi 1	Delphi 2	Difference			Signed Rank	
			(d=X1-X2)	|d|	Rank |d|	+	-
1	12.52	13.29	-0.7672	0.7672	24		24
2	16.42	17.16	-0.7435	0.7435	23		23
3	14.44	15.87	-1.4280	1.4280	37		37
4	14.06	16.57	-2.5089	2.5089	48		48
5	8.98	9.86	-0.8728	0.8728	26		26
6	10.80	10.47	0.3331	0.3331	10	10	
7	15.27	13.69	1.5709	1.5709	38	38	
8	14.34	13.89	0.4549	0.4549	13	13	
9	10.20	11.00	-0.7959	0.7959	25		25
10	11.27	11.03	0.2347	0.2347	7	7	
11	15.47	12.20	3.2647	3.2647	51	51	
12	9.28	9.33	-0.0521	0.0521	1		1
13	6.90	7.58	-0.6854	0.6854	20		20
14	6.86	6.67	0.1905	0.1905	4	4	
15	6.43	7.13	-0.6964	0.6964	22		22
16	6.91	8.82	-1.9101	1.9101	44		44
17	15.71	20.48	-4.7704	4.7704	53		53
18	13.02	13.22	-0.2041	0.2041	5		5
19	12.12	15.83	-3.7109	3.7109	52		52
20	17.38	18.04	-0.6581	0.6581	19		19
21	10.09	10.67	-0.5729	0.5729	16		16
22	15.04	16.16	-1.1262	1.1262	32		32
23	11.85	14.57	-2.7196	2.7196	49		49
24	19.59	17.51	2.0835	2.0835	47	47	
25	16.50	17.14	-0.6429	0.6429	18		18
26	14.84	18.08	-3.2396	3.2396	50		50
27	12.25	13.43	-1.1786	1.1786	33		33
28	14.06	15.43	-1.3730	1.3730	36		36
29	11.50	11.30	0.2041	0.2041	6	6	
30	13.71	12.67	1.0408	1.0408	30	30	
31	7.29	7.86	-0.5714	0.5714	15		15
32	14.88	14.93	-0.0530	0.0530	2		2
33	15.56	17.14	-1.5873	1.5873	39		39
34	16.79	16.33	0.4636	0.4636	14	14	
35	15.86	14.80	1.0635	1.0635	31	31	
36	13.85	14.86	-1.0053	1.0053	29		29
37	11.86	11.27	0.5989	0.5989	17	17	
38	10.59	12.57	-1.9788	1.9788	45		45
39	14.63	12.86	1.7679	1.7679	41	41	
40	13.88	14.25	-0.3750	0.3750	11		11
41	10.80	12.55	-1.7486	1.7486	40		40
42	9.26	10.46	-1.1999	1.1999	34		34
43	15.01	16.29	-1.2734	1.2734	35		35
44	10.94	10.25	0.6875	0.6875	21	21	
45	7.67	9.44	-1.7778	1.7778	42		42
46	11.43	11.76	-0.3265	0.3265	9		9

	Significance						
Risk Number	Delphi 1	Delphi 2	Difference			Signed Rank	
			(d=X1-X2)	|d|	Rank |d|	+	-
47	10.65	12.55	-1.8980	1.8980	43		43
48	15.41	15.82	-0.4089	0.4089	12		12
49	15.48	15.39	0.0937	0.0937	3	3	
50	12.25	14.33	-2.0796	2.0796	46		46
51	10.00	9.00	1.0000	1.0000	28	28	
52	10.16	11.10	-0.9479	0.9479	27		27
53	15.07	15.39	-0.3137	0.3137	8		8
54	11.57		11.5714	11.5714	54	54	
55	12.21		12.2143	12.2143	55	55	
	n =	55.00				470	1070
		Critical value of T	Accept?				
	P=0.050	566	Yes			T +	470
	P=0.025	529	Yes				
	P=0.010	488	Yes				
	P=0.005	458	No				

Appendix G – Critical values for T in the Wilcoxon test

	n=53	n=54	n=55
P=0.100	526	546	566
P=0.050	491	510	529
P=0.025	452	470	488
P=0.010	424	441	458

Appendix H – List of risks identified from the Delphi process

1. Staff not aware of progress of merger
2. Inter-organisational connectivity not achieved
3. General Organisational Cultures do not match
4. Business areas do not report progress in a timely
5. Control centre staff are not the correct personality types for the role
6. Control centre staff do not fully understand what they are reporting
7. Investment bank's operations are so large and complex that it is not possible for single individuals to fully
8. Seniority of rank may take precedence over knowledge in the operation of the control centre
9. Control centre managers are not good people managers
10. Control centre tools not robust
11. Control staff not aware of contingency measures
12. Control centre staff do not 'know' their counterparts in other locations
13. Control centre environment not comfortable
14. Food and drinks available to the control centre staff not sufficient
15. Amenity and hygiene facilities not suitable for control centre working
16. Inadequate mix of experienced and energetic staff in the control centre.
17. Need to rationalise software may mean that 'good' software is disposed of.
18. The number of positions on the books make it difficult to complete the change of control in the desired
19. Post merger staff not 'introduced' to new organisation
20. Management may focus on the 'business' of the merger and not the human resources side of it
21. 'Overnight' re-branding of corporate systems may result in a shock or possible resentment by staff
22. Staff not aware of their position in the new combined organisation
23. Personal contacts network no longer valid, or significantly reduced
24. Critical staff dependency
25. Organisation is slow to mobilise itself for the merger
26. Talented resource not fully utilised
27. Valuation of the merger incorrect
28. Merger execution 'due diligence' not completed in a timely manner

29. Escalation process too sensitive
30. Control centre not practiced
31. Control centre overly practiced
32. Business lines not utilizing central PMO resources
33. Co-ordination meetings too large
34. Staff become 'burned out'
35. Financial and risk control may not be as accurate as possible
36. Knowledge diluted by a single point of control
37. Formal escalation through control structures may result in a slowing of the decision making process
38. Everyone involved in the change of control not aware of the plan
39. Change of Control reporting requirements not defined at start of CoC period
40. Formal reporting lines bypassed
41. Progress not reported "down" the organisation
42. The recipients of information are not clearly defined
43. System dependencies not clearly defined
44. Control centre staff not well trained
45. No event tracking in place
46. Trading desks not aware of their positions after Change of Control
47. Settlement function not clear as to what positions need to be settled or when
48. Communications with external parties not coordinated
49. Non-trading areas not fully engaged
50. Organisation not confident that merger will actually
51. Control centres not set-up correctly
52. Merger information packs not distributed in time
53. Change of Control plans not completed in a timely
54. Trading desks not aware of their positions at the start of Change of Control; and
55. Trading desks not aware of their positions during.

Risk Number[9]	Significance variation > 1SD	Mitigation variation > 1SD	Significances Ranking	Mitigation Ranking	Negligent Ranking	Excessive Ranking
1		Yes	33	46	22	
2	Yes		19	18	25	
3	Yes	Yes	13	44	11	
4	Yes		23	25	26	
5		Yes	47	30		17
6		Yes	41	41	30	
7	Yes	Yes	22	36	18	
8	Yes	Yes	15	40	12	
9		Yes	39	43	29	
10	Yes	Yes	35	10		14
11	Yes		25	23	32	
12		Yes	50	26		12
13		Yes	52	18		4
14		Yes	55	9		1
15			53	34		13
16			51	27		10
17	Yes	Yes	3	54	1	
18		Yes	29	12		19

[9] Top most excessive in **RED**, ten most negligent in **BLUE** and ten most balanced in GREEN

Risk Number[9]	Significance variation > 1SD	Mitigation variation > 1SD	Significances Ranking	Mitigation Ranking	Negligent Ranking	Excessive Ranking
19		Yes	24	54	5	
20	Yes	Yes	1	49	2	
21		Yes	46	53	19	
22		Yes	17	50	7	
23			26	51	9	
24	Yes		2	38	4	
25			4	38	8	
26		Yes	7	52	3	
27			32	35	28	
28	Yes		11	36	13	
29		Yes	40	46	24	
30	Yes		28	11		20
31		Yes	54	12		3
32	Yes		10	16	23	
33	Yes	Yes	6	44	10	
34		Yes	5	46	6	
35	Yes		12	31	15	
36	Yes		21	18	31	
37	Yes		34	29		21
38			31	15		18
39	Yes	Yes	27	41	17	
40	Yes	Yes	18	33	14	

Risk Number[9]	Significance variation > 1SD	Mitigation variation > 1SD	Significances Ranking	Mitigation Ranking	Negligent Ranking	Excessive Ranking
41		Yes	30	28		23
42	Yes	Yes	44	24		16
43	Yes		9	21	21	
44			43	6		9
45			49	7		5
46	Yes		37	5		11
47	Yes		38	4		8
48	Yes		14	3		22
49	Yes	Yes	8	21	20	
50	Yes	Yes	19	17	27	
51		Yes	48	8		6
52		Yes	36	12		15
53	Yes		16	31	16	
54			45	1		2
55	Yes		42	2		7

Appendix J – Sitkin and Pablo's risk propositions

1. The risk propensity of decision makers will be consistent with their preference concerning risk.

2. Over time, decision makers will exhibit inertia in their risk propensity.

3.a Decision maker's propensity to take risks will be contingent upon the degree of outcome of success associated with their past propensity to take risks.

3.b The variability of decision makers' risk propensity will decrease with increases in the scale of prior failure outcomes, but will be unaffected by the schedule of prior failure outcomes.

4. Decision makers who have a risk-seeking propensity will perceive risks to be lower than decision makers who have a risk-averse propensity.

5.a Positively framed situations will be perceived as involving higher risk than is normatively appropriate, whereas negatively framed situations will be perceived as involving a level of risk that is lower than normatively appropriate.

5.b Negatively framed situations will be perceived as involving higher risk than is normatively appropriate, whereas positively framed situations will be perceived as involving a level of risk that is below a normatively acceptable limit.

6. The more homogeneous the top-management team, the more its individual members will exhibit risk perceptions that are similar and extreme; they also will exhibit confidence in the accuracy of those perceptions.

7. Decision maker's perceptions of risk will be consistent with the risk-related role models provided by their leaders.

8.a Decision makers with moderate levels of domain familiarity will have more accurate estimates of risk and more moderate levels of confidence in the accuracy of those estimates than will decision makers with high or low levels of domain familiarity.

8.b Decision makers with moderate or high levels of domain familiarity will have more stable perceptions of risk than will decision makers with low levels of domain familiarity.

9.a The greater the emphasis on process controls in organisations, the lower the level of risk perceived be decisions makers.

9.b The greater the emphasis on outcome controls in organisations, the higher the level of risk perceived by decision makers.

Appendix K – Vlek and Keren's risk definitions

1. Probability of undesired consequences.

2. Seriousness of (maximum) possible undesired consequences.

3. Multi-attribute weighted sum of components of possible undesired consequences.

4. Probability × seriousness of undesired consequences ('expected loss').

5. Probability weighted sum of all possible undesired consequences (average 'expected loss').

6. Fitted function through graph of points relating probability to extent of undesired consequences.

7. Semi variance of possible undesired consequences about their average.

8. Variance of all possible consequences about mean expected consequences.

9. Weighted combination of various parameters of the probability distribution of all possible consequences.

10. Weight of possible undesired consequences ('loss') relative to comparable possible desired consequence ('gain').

Appendix L – Volatility of results: Average probability, impact and mitigation scores for all risks

	Average				Probability			Impact			Mitigation		
Risk Number	Not a risk	Probability	Impact	How well managed?	Average	Standard Deviation	Range	Average	Standard Deviation	Range	Average	Standard Deviation	Range
1		4.45	2.73	2.91	4.45	1.13	4.00	2.73	0.65	2.00	2.91	1.04	4.00
2		3.82	4.00	4.00	3.82	1.25	4.00	4.00	1.00	3.00	4.00	0.77	2.00
3		4.41	3.59	3.00	4.41	1.39	4.00	3.59	1.02	3.00	3.00	1.10	4.00
4		3.45	3.45	3.45	3.45	1.44	5.00	3.45	1.51	5.00	3.45	1.21	4.00
5		2.82	2.91	3.27	2.82	1.08	4.00	2.91	1.22	5.00	3.27	1.35	5.00
6		3.82	2.91	3.09	3.82	0.87	3.00	2.91	0.83	3.00	3.09	0.70	2.00
7		3.82	2.55	2.68	3.82	2.04	6.00	2.55	1.51	5.00	2.68	1.65	5.00
8		4.09	3.18	2.82	4.09	1.58	6.00	3.18	1.40	5.00	2.82	1.54	5.00
9		3.09	2.45	2.50	3.09	1.64	5.00	2.45	1.29	4.00	2.50	1.60	5.00
10		3.09	3.14	3.82	3.09	1.30	5.00	3.14	1.38	5.00	3.82	1.54	5.00
11		3.27	3.55	3.55	3.27	1.74	6.00	3.55	1.57	6.00	3.55	1.37	5.00
12		2.91	2.55	3.55	2.91	1.38	5.00	2.55	1.13	4.00	3.55	1.44	5.00
13		3.09	1.73	3.27	3.09	1.76	5.00	1.73	0.90	3.00	3.27	1.79	5.00
14		2.91	1.64	3.50	2.91	1.81	5.00	1.64	1.03	3.00	3.50	2.06	6.00
15		2.73	1.86	2.73	2.73	1.74	6.00	1.86	1.05	3.00	2.73	1.49	4.00
16		3.45	2.00	3.41	3.45	1.37	5.00	2.00	0.77	3.00	3.41	1.28	5.00
17		4.14	2.95	1.73	4.14	2.10	6.00	2.95	1.77	5.00	1.73	1.19	4.00
18		3.09	3.45	3.73	3.09	1.22	4.00	3.45	1.44	5.00	3.73	1.62	6.00
19		4.00	2.36	1.73	4.00	2.05	6.00	2.36	1.36	4.00	1.73	1.19	4.00
20		5.00	3.73	2.68	5.00	0.63	2.00	3.73	1.01	3.00	2.68	1.06	3.00
21		3.82	2.18	2.14	3.82	1.47	5.00	2.18	0.98	4.00	2.14	1.05	4.00
22		4.64	3.36	2.64	4.64	0.81	3.00	3.36	0.81	2.00	2.64	1.03	3.00
23		4.82	2.91	2.36	4.82	0.75	3.00	2.91	0.54	2.00	2.36	0.81	3.00
24		4.82	3.82	3.14	4.82	0.98	3.00	3.82	0.75	2.00	3.14	0.71	2.00
25		4.27	4.00	3.14	4.27	0.65	2.00	4.00	0.63	2.00	3.14	0.71	3.00
26		4.64	2.91	2.09	4.64	1.63	6.00	2.91	1.14	4.00	2.09	1.04	4.00
27		3.36	3.05	3.00	3.36	1.29	5.00	3.05	1.19	5.00	3.00	1.10	4.00
28		3.18	3.36	2.68	3.18	1.66	5.00	3.36	1.80	6.00	2.68	1.38	4.00
29		3.91	2.86	2.91	3.91	0.54	2.00	2.86	0.64	2.00	2.91	0.83	3.00
30		3.45	3.18	3.77	3.45	1.29	5.00	3.18	1.60	5.00	3.77	1.47	6.00
31		2.82	2.14	3.73	2.82	1.17	4.00	2.14	1.10	3.50	3.73	1.49	6.00
32		3.55	3.05	3.32	3.55	1.86	6.00	3.05	1.80	6.00	3.32	1.68	5.00
33		5.00	3.27	3.00	5.00	0.63	2.00	3.27	0.90	3.00	3.00	0.89	3.00
34		4.55	3.73	2.91	4.55	0.69	2.00	3.73	0.90	3.00	2.91	1.04	4.00
35		3.45	3.82	3.18	3.45	1.44	6.00	3.82	1.54	6.00	3.18	1.25	4.00
36		3.64	4.00	4.00	3.64	1.21	4.00	4.00	1.26	4.00	4.00	0.63	2.00
37		3.36	3.55	3.64	3.36	0.81	3.00	3.55	1.13	4.00	3.64	0.81	2.00
38		3.82	3.27	4.09	3.82	0.98	3.00	3.27	1.10	4.00	4.09	0.70	2.00
39		4.64	3.00	3.09	4.64	0.92	3.00	3.00	0.89	3.00	3.09	1.14	4.00
40		4.27	3.00	3.05	4.27	1.68	6.00	3.00	1.48	6.00	3.05	1.49	5.00
41		4.27	2.95	3.73	4.27	1.35	5.00	2.95	0.85	3.00	3.73	1.10	4.00
42		3.55	2.95	3.82	3.55	0.82	3.00	2.95	0.96	3.00	3.82	0.87	2.00
43		4.14	3.91	3.91	4.14	1.23	4.00	3.91	1.04	4.00	3.91	0.70	2.00
44		3.14	2.91	4.05	3.14	1.31	5.00	2.91	1.38	5.00	4.05	1.42	5.00
45		2.82	3.27	4.36	2.82	1.33	5.00	3.27	0.90	3.00	4.36	0.67	2.00
46		2.27	4.18	4.09	2.27	1.10	4.00	4.18	1.72	6.00	4.09	1.51	5.00
47		2.59	3.64	4.14	2.59	1.07	4.00	3.64	1.75	6.00	4.14	1.45	5.00
48		3.55	4.45	4.64	3.55	1.63	5.00	4.45	0.93	3.00	4.64	0.67	2.00
49		3.82	4.27	3.91	3.82	0.87	3.00	4.27	0.79	3.00	3.91	1.04	4.00
50		3.82	4.00	4.05	3.82	1.60	5.00	4.00	1.18	4.00	4.05	0.96	3.00
51		3.09	3.09	4.32	3.09	1.14	3.00	3.09	1.14	4.00	4.32	0.90	3.00
52		3.05	3.14	3.73	3.05	1.27	5.00	3.14	1.31	5.00	3.73	1.49	5.00
53		4.09	3.82	3.50	4.09	0.94	3.00	3.82	0.87	3.00	3.50	0.50	1.00
54		2.27	3.77	4.64	2.27	1.01	4.00	3.77	1.57	6.00	4.64	1.57	6.00
55		2.36	3.86	4.27	2.36	1.29	5.00	3.86	1.61	6.00	4.27	1.56	5.00

Test number	**Risk characteristic**
7	Risk is subject to industry specific regulation*
10	Risk can be managed using formal controls (Yes) **
12	Risk can be managed using formal controls (No) ***
13	Problem domain is familiar***
14	Risk is managed by those impacted**
15	Risk impacts CoC (Exclusively) ***
17	Risk is classified as "Technology"†
19	Risk is classified as "Culture"***
20	Risk is classified as "Physical"***
21	Risk impacts pre-CoC***
22	Risk impacts at CoC†
23	Risk impacts post-CoC***

Questionnaire instructions

Dear XXXXXXXX

Thanks again for agreeing to take part in this follow-up exercise. As you recall we identified a number of hazards which could impact BT/DB merger. You also helped me identify the probability, impact and quality of mitigation in place for each of hazard.

The research indicates that certain factors may have been particularly important in influencing the way certain risks were managed. I wish to see if that is true. As discussed in our phone call I would appreciate it if you could look once more at each of these risks and answer let me know if each of the three factors apply. Please use the drop down box for each to enter "Yes", if it did apply, "No" if it did not and "?" if you feel you can't answer (Please try not to use this option!).

The three factors are:

- Industry Specific Regulation Exists which addresses this hazard - This is regulation specific to banking/financial services (FSA/SEC or FED regulations)
- Successful outcome history - of dealing with this hazard
- Can be managed using normal management controls - The types of everyday controls in place can be used to manage this hazard

Please return your questionnaires to me as soon as you can via e-mail to XXXXXXXXX@XX.XXX or via fax XXXX XXXX

Again, many thanks,

Michael.

Hazard Number	Hazard Description	Industry Specific Regulation Exists which addresses this hazard	Successful outcome history	Can be managed using normal management controls
1	Staff not aware of progress of merger.			
2	Inter-organisational connectivity not achieved.			
3	General Organisational Cultures do not match.			
4	Business areas do not report progress in a timely manner.			
5	Control centre staff are not the correct personality types for the role.			
6	Control centre staff do not fully understand what they are reporting.			
7	Investment bank's operations are so large and complex that it is not possible for single individuals to fully understand it.			
8	Seniority of rank may take precedence over knowledge in the operation of the control centre			
9	Control centre managers are not good people managers			
10	Control centre tools not robust.			
11	Control staff not aware of contingency measures.			
12	Control centre staff do not 'know' their counterparts in other locations			
13	Control centre environment not comfortable			
14	Food and drinks available to the control centre staff not sufficient.			
15	Amenity and hygiene facilities not suitable for control centre working			
16	Inadequate mix of experienced and energetic staff in the control centre.			
18	The number of positions on the books make it difficult to complete the change of control in the desired time-frame.			
19	Post merger staff not 'introduced' to new organisation			
21	'Overnight' re-branding of corporate systems may result in a shock or possible resentment by staff			
22	Staff not aware of their position in the new combined organisation.			

23 Personal contacts network no longer valid, or significantly reduced.			
24 Critical staff dependency.			
25 Organisations slow to mobilise itself for the merger.			
26 Talented resource not fully utilised.			
27 Valuation of the merger incorrect.			
28 Merger execution 'due diligence' not completed in a timely manner.			
29 Escalation process too sensitive.			
30 Control centre not practiced.			
32 Business lines not utilizing central PMO resources.			
33 Co-ordination meetings too large.			
34 Staff become 'burned out'.			
35 Financial & risk control may not be as accurate as required			
36 Knowledge diluted by a single point of control			
37 Formal escalation through control structures may result in a slowing of the decision making process.			
38 Everyone involved in the change of control not aware of the plan			
39 Change of Control reporting requirements not defined at start of CoC period.			
40 Formal reporting lines bypassed			
41 Progress not reported "down" the organisation.			
42 The recipients of information are not clearly defined			
43 System dependencies not clearly defined			
44 Control centre staff not well trained.			
45 No event tracking in place.			
46 Trading desks not aware of their positions after Change of Control.			
47 Settlement function not clear as to what positions need to be settled or when.			

48 Communications with external parties not coordinated.			
49 Non-trading areas not fully engaged.			
50 Organisation not confident that merger will actually happen.			
51 Control centres not set-up correctly.			
52 Merger information packs not distributed in time.			
53 Change of Control plans not completed in a timely manner.			

DOC01B	Acquisition Plan 'Bank B' acquisition of 'Bank A'. 1997.
DOC02B	Merger Integration Template 'Bank B' acquisition of 'Bank A'. 1997.
DOC03B	Annual Report for the year 1998. 1999.
DOC04C	Business Continuity Plan. 1998.
DOC05C	RAPID - Risk Assumption, Project plan and Issue Database. 1998.
DOC06C	Acquisition (CoC) Plan 'Bank C' acquisition of 'Bank B'. 1999.
DOC07C	Acquisition Plan 'Bank C' acquisition of 'Bank B'. 1999.
DOC08C	Annual Report for the year 1998. 1999.
DOC09C	CoC Business Continuity Plan. 1999.
DOC10C	Merger Integration Template 'Bank C' acquisition of 'Bank B'. 1999.
DOC11C	Pre merger plan 'Bank C' and 'Bank B'. 1999.
DOC12C	Merger Dress Rehearsal Plan 1. 1999.
DOC13C	Merger Dress Rehearsal Plan 2. 1999.
DOC14C	Merger Dress Rehearsal Plan 3. 1999.
DOC15C	Merger Dress Rehearsal Plan 4. 1999.
DOC16B	Controlling systems technology profile. 1999.
DOC17B	Risk technology systems profile. 1999.
DOC18C	Integration Project Guidelines. 1999.
DOC19C	CoC Control Centre handbook. 1999
DOC20B	Bank B's Annual report for 1998, 1999
DOC21B	Bank B's final Annual report for 1999, 1999
DOC22C	Bank C's Annual report for 1999, 2000
DOC23C	Bank C's Annual Report 2000, 2001
DOC24C	Bank C's Annual Report 2001, 2002
DOC25C	Bank C's Annual Report 2002, 2003

DOC26C	Video tape of meeting/briefing session given
DOC27C	Review conducted by PricewaterhouseCoopers of the acquisition of Bank B

List of interviewees

Interviewee Reverence	Description
[Inv A]	Consultants employed from a leading Management Consulting firm
[Inv B]	
[Inv C]	
[Inc D]	Managers involved in the CoC merger
[Inv E]	
[Inv F]	
[Inv G]	Senior managers working on the merger
[Inv H]	
[Inv I]	Leading M & A academic
[Inv J]	Member of the CoC staff
[Inv K]	
[Inv L]	

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